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ASPECTS OF CRANIO-CEREBRAL TRAUMA

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CEREBRAL OEDEMA

True oedema is an accumulation of fluid in the tissue spaces between cells, units of cells and fibres. In the brain it indicates also the occurrence of fluid in the perivascular spaces. Accumulation of fluid in the cells themselves should not be regarded as true oedema (Tedeschi, 1945) although there is no reason to believe that increased fluid in the ventricles is not part of the same mechanism (*cf.* ascites). Excess fluid in the cells themselves is called 'brain swelling' by some (Rowbotham, 1949) though Scheinker (1947) considers swelling to be merely an earlier stage of oedema. Because histological examination does not always provide incontrovertible evidence of oedema, authoritative opinion differs about its incidence and extent in trauma of the brain. American opinion seems to favour the occurrence of a general oedema. Rand and Courville (1931) consider that the most common post-traumatic state is increased intracranial pressure due to the excess production of cerebrospinal fluid consequent to oedema and stimulation of the choroid plexuses. Apfelbach (1922), Levinson (1943), Fay (1937), Munro (1945), Brain and Strauss (1946) and Scheinker (1947), amongst others, all consider general oedema to be common in serious trauma and fatal cases. The belief that there is increased fluid is partly based, as Shapiro and Jackson (1939) remark, on the increased cerebrospinal fluid pressure. An increase in brain bulk, however, can cause a smaller amount of fluid to be under an increased pressure. Experimentally, at any rate, injury of the brain is not productive of oedema. Parker and Lehman (1936), Tedeschi (1945) and Windle *et al.* (1944, 1946) all found either no or minimal oedema in both experimental concussion and contusion. Rowbotham (1949), representing the British school of thought, is of the opinion that generalized oedema is far less frequent than was formerly believed and personally thinks it quite rare. Both he and Greenfield (1938), however, consider local oedema, surrounding an area of contusion or laceration, to be common. Such also was the opinion of Russell (1932). If oedema is judged clinically on the basis of raised intracranial pressure, then grave errors may be made. Cases of prolonged coma with normal pressures occur and, when submitted to craniotomy, an intensely oedematous brain is revealed, as shown by its marked tendency to herniate through the bony defect of the skull. A condition of 'malignant oedema' is described by Munro (1938) as occurring in craniocerebral injury or after operations for this condition. It is apparently more common in children and may be hemispheric. The intracranial pressure is not necessarily raised, the condition is difficult to treat and the mortality is high.

The following are the more important theories about the cause of the oedema:

1. There occurs a breakdown of the cell membranes produced by the trauma, resulting in increased permeability, i.e. physico-chemical changes take place (Ferguson and Liversedge, 1946). Alterations in the cell membranes are suggested by electro-encephalographic changes that occur in experimental concussion (Walker *et al.*, 1944).
2. There is increased capillary permeability consequent either upon abnormal metabolites in the interstitial spaces or on vasomotor paralysis (Rowbotham, 1949; Greenfield, 1938).
3. Traumatic subarachnoid haemorrhage may directly or indirectly cause injury to the Pacchionian corpuscles and consequent cerebral hydrosis. Also, a sudden disturbance of pressure may cause a direct interference with the normal physiology of the brain cells (Masserman and Schaller, 1933).
4. Vasodilatation, stasis, increased permeability and loss of fluid into the tissues is the sequence of events postulated, mainly by Evans and Scheinker (1945). Rowbotham draws attention to a vicious circle that may result: oedema leads to increased intracranial tension: this causes venous congestion, which in turn leads to capillary stasis, so increasing the oedema.

Various contributory factors have been discussed before.

The Pathology of Oedema. Microscopically it shows itself as a honeycombing of the tissues and dilatation of the perivascular spaces. Macroscopically it is characterized by a tense dura, a 'weeping' arachnoid, a pale or putty-coloured 'doughy' cortex, a soft brain flattening out easily when laid on a flat surface, a 'wet' brain, the cut surface of which presents a glistening appearance—the knife glides through easily because of the wetness, (normally it is necessary to use a moistened knife to cut the brain as it tends to be sticky), flattened convolutions with tightly closed sulci, a relative emptiness of the smaller cerebral veins, expansion of the white matter causing narrowing and compression of the grey matter, ventricles that may either be compressed by the surrounding oedematous brain or dilated owing to the enormous increase in fluid: not infrequently there is the finding of

* The References will be published at the end of the concluding paper in this series.

prominent 'cerebellar tonsils' and uncal herniations. The brain is swollen when the difference between brain volume and skull capacity is less than 8% (Reichardt), though Greenfield (1938) lays down an increase of brain size to beyond 96% of skull capacity.

Effects of Oedema. One of the dangerous complications of head injury, oedema can be of rapid onset, within a few hours of injury. Scheinker (1947) attributes great importance to the associated vascular alterations. Swelling of the brain first causes herniation of the uncus into the narrow space of Bichat and, in more severe cases, an actual downward displacement of the brain stem. Unilateral oedema may cause herniation of the supracallosal gyrus under the falx with displacement of the ventricular system. Besides the effect of oedema in causing a vicious circle (*vide supra*) it can, by compression of the smaller vessels, cause anaemia of the brain with consequent anoxia, disturbance of metabolism and cellular nutrition and, as a consequence, further oedema. Oedema may contribute to a fatal issue directly by involving the vital centres in the brain-stem.

TRAUMATIC HYDROCEPHALUS

An accumulation, in excess of normal, of cerebrospinal fluid either generally or in the various compartments of the brain can result from three pathological factors, all of which are alleged to take part in the hydrocephalus of craniocerebral injury.

1. *Factors Causing Increased Secretion of Fluid.* Rand and Courville (1931) are of the opinion that vacuolation of the choroidal and ependymal cells occurs early, within a few hours of injury, and results in abnormal activity and enhanced formation of cerebrospinal fluid.

2. *Factors Causing Decreased Absorption of Fluid.* (a) The arachnoidal villi and Pacchionian corpuscles, while fulfilling their function as scavengers, may become clogged with red cells and their broken-down products, thereby blocking one of the chief routes of restoration of fluid to the vascular circulation. Fluid dams back in the spaces around and in the brain and in the prolongations along the perivascular spaces, resulting in a condition which could aptly be called a hydrosis, similar to conditions like hydrohepatosis and hydronephrosis.

(b) Destruction of normal absorptive areas of the brain by contusion and laceration further hampers the return of fluid, thus predisposing to the development of hydrocephalus of the external type.

3. *Factors Causing Obstruction to the Circulation of Cerebrospinal Fluid.* (a) Haemorrhage is by far the commonest agent. A small clot may obstruct the aqueduct of Sylvius or the foramina of Magendie and Luschka may become blocked, either from haemorrhage within the brain or in the surrounding subarachnoid space. Blood clot in the basal cisterns may likewise interfere with the circulation and cause an external or communicating type of hydrocephalus.

(b) Oedema, particularly when localized to the brain-stem, the aqueduct or around the outlets of the fourth ventricle, may compress or even occlude these narrow channels, so causing an internal hydrocephalus. The French, in particular, favour this mechanism.

(c) Obstruction may also be caused by the compression of the brain-stem in supratentorial herniations. Besides involving the aqueduct, the upward flow of fluid is impeded. A vicious circle establishes itself; the internal hydrocephalus causes greater herniation, more compression and obstruction and increasing ventricular dilatation.

(d) Organization of clot and the irritative effects of broken-down blood products lead to fibrosis and occlusion of the normal channels of cerebrospinal fluid flow with the gradual development of hydrocephalus of delayed onset.

External hydrocephalus is not infrequently encountered. The dura is tense, non-pulsatile and of a dull-white colour. Incision into the subarachnoid space may cause a small jet-like fountain of fluid to escape. In some cases this procedure may break the vicious circle and recovery ensue. The lateral ventricles are often found to be dilated in fatal cases, often to twice their normal size (30-60 c.c.) (Shapiro and Jackson, 1939). These authors suggest ventricular puncture as a rational procedure and have found that removal of only 14 c.c. may be enough to restore pressure to normal.

INTERNAL HERNIATIONS OF THE BRAIN

These are, as it were, complications of the complications of cerebral injury, i.e. all those space-occupying lesions listed previously, such as the various forms of haemorrhage, oedema and hydrocephalus, by increasing the pressure in the whole or the various compartments of the cranium, result in the protrusion of brain substance through actual or potential defects in the duro-osseous covering. It is when steep pressure differences occur between the compartments above and below the tentorium, or the latter and the spinal thecal space, that herniations from the higher pressure compartments occur. Herniation with compression of the aqueduct is the main cause of increased ventricular pressure. As long as the ventricular and lumbar pressures are equal, even at high levels, no herniation with consequent circulatory or respiratory embarrassment will occur (Kahn, 1944; Masserman, 1934).

1. *Supratentorial and Transtentorial Herniation.* This is being increasingly recognized as the commonest of the internal herniations. In the past attention was mainly focussed on the foraminal type; thereby the frequently more important tentorial form was missed. Encroachment on the supratentorial space, or enlargement of the cerebral hemispheres, especially when unilateral, is the direct aetiological factor, particularly when the lesion involves the temporo-sphenoidal or parieto-temporal regions. Jefferson (1938) and Scheinker (1945), in particular, have described the patho-physiological mechanism involved. In the acute development of supratentorial pressure, cerebrospinal fluid is first displaced from the subarachnoid space and cisterns of the brain. This is followed by displacements of cerebral substances and processes of brain are forced through various points of weakness. The uncus lies in the direct line of pressure and is the first to herniate—the ipsilateral first, later the opposite side (Figs. 6, 7). In bilateral lesions the uncal

herniations and the brain-stem together form a tightly fitting wedge in the incisural hiatus, thereby obstructing both ventricular and subarachnoid fluid. With the increase in intraventricular pressure the brain-stem is pushed down deeper and deeper. The blood vessels, which here lie superficial, are compressed and kinked, causing congestion, stasis, anoxia and ultimately perivenous haemorrhages. Important phenomena develop:

(a) Involvement of the third nerve and the development of unilateral fixed dilated pupil (Fig. 6).

(b) Compression of the pyramidal tracts against the opposite edge of the tentorium may result in ipsilateral paralysis, hyper-reflexia and spasticity.

(c) Compression of the posterior cerebral artery causing infarction of part of the homolateral occipital lobe, this being aided by the venous congestion that occurs as the result of the shift of the brain across the midline.

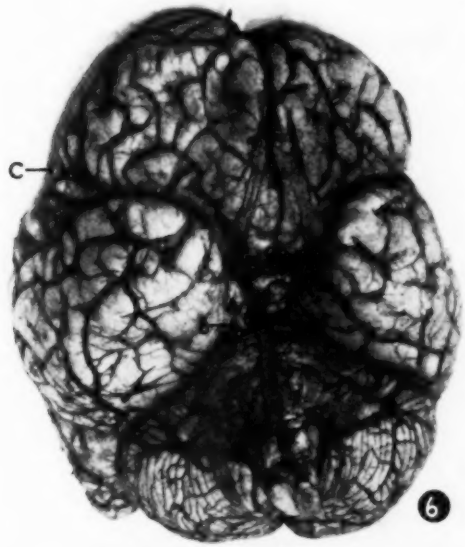

Fig. 6. Extradural haematoma with herniation of the uncus. Ipsilateral pupil dilated and fixed. Temperature, 103° F. Bilateral spastic paralysis of legs. Cerebello-medullary coning (D). Compression at (C) caused herniation of the uncus (A) and this in turn, by pressure on the third nerve (B) gave rise to the dilated pupil. Brain hardened in formalin.

Fig. 7. Laceration of right frontal lobe. Contusion at tips of temporal lobes. Marked prominence of right uncus (A) with grooving.

Fig. 8. Typical linear haemorrhages in the pons and midbrain.

A case of massive acute subdural haematoma, severe laceration of the brain, herniation of the uncus, internal hydrocephalus, haemorrhages into the pons and midbrain. Lumbar puncture revealed a pressure of 150 mm. fluid. Subdural haematoma evacuated at operation. Markedly distended left lateral ventricle.

(d) Oedema and haemorrhages in the midbrain (Fig. 8).

(e) Consequent upon the external compression and the internal pathological changes a condition of physiological section of the midbrain may result.

(f) Clinically a syndrome develops (Schwarz and Rossner, 1941) characterized by:

i. Fluctuations in the state of consciousness.
ii. Inequality of the pupils.
iii. Neck rigidity.
iv. Disturbance of the extra-ocular muscles.
v. Cardio-respiratory and thermo-regulatory disturbances.
vi. Paradoxical pyramidal tract signs.
vii. Decerebrate rigidity.

The complete syndrome, naturally, rarely occurs but any one or combination of signs and symptoms is indicative of a grave progressive lesion requiring immediate operative treatment.

2. *Herniation Through the Foramen Magnum.* The structures in the posterior fossa fill the infratentorial compartment snugly, though well-cushioned by the large cisternal spaces. The small compartment, however, is unable to accommodate any large space-filling lesion. Once fluid is squeezed out of the cisterns, the cerebellum and medulla are compressed against the inner surface of the skull and the foramen magnum, eventually partially extruding through the latter opening. In well-marked cases the medulla becomes cone-shaped and deep grooves traverse the basal surfaces of the cerebellum (Fig. 6). The obliterated cisterna magna makes any attempt at cisternal puncture exceedingly hazardous and ineffective. Increasing wedging of the medulla leads to ischaemia of the vital centres in this region, resulting finally in paralysis and death. Sudden release of pressure below the foramen magnum by lumbar drainage will allow more space for herniation, and a deeper impaction of the medulla and death may be precipitated.

Herniation of the cerebellum can occur through hydrodynamic means alone in conditions where there is an increased fluid pressure in the ventriculo-arachnoid spaces beneath the tentorium or where there is stenosis of the foramina in the roof of the fourth ventricle or of the subarachnoid spaces at or slightly above the foramen magnum (Masserman, 1934). Removal of fluid below this level would create such a difference of pressure-head as to lead to herniation. Obstruction caused by subarachnoid clot, or in the later phases, adhesions, may, in traumatic cases, play a part in the production of coning after lumbar puncture.

3. *Herniation under the Falx Cerebri.* This occurs rarely, the supracallosal gyrus extruding itself under the sharp crescentic border of the falx into the opposite compartment. Pressure on vessels may cause infarctions and these have been described in the course of the anterior and even the middle cerebral arteries (Evans and Scheinker, 1943).

The anterior recurved end of the hippocampal gyrus is not frequently enough inspected in autopsy examinations. When looked for, evidence of deformation will be found in a considerable number of fatal cases, in association with the pathological changes discussed before. Brain-stem lesions are frequently encountered, in 11.5% of cases (Courville, 1945). Browder and Turney (1942) found them in approximately one-third of their fatal cases of intracerebral haemorrhages. With the wedging of processes of brain tissue the greatly increased supratentorial pressure is cut off from below so that the lumbar pressure may register a normal (Figs. 7 and 8), or even below normal reading giving a dangerous erroneous finding which may adversely influence treatment. As the space-filling lesions are in the vast majority of cases above the tentorium, their effect on lumbar manometry should be known and the significance more fully appreciated. The danger of lumbar puncture is not so much the production of cerebellar as of tentorial coning and Scheinker, moreover, found that cerebellar pressure coning was frequently absent in these cases. In our series, however, cerebellar 'grooving' was almost always present when gross pathological changes were revealed in the brain.

ABSTRACTS

Vitamin B_{12} in Pernicious Anaemia: Parenteral Administration. C. C. Ungley (1949): Brit. Med. J., **2**, 1370.

A comprehensive report of extensive trials with Crystalline Vitamin B_{12}. Seventy-three responses to single intramuscular doses were observed in 53 patients with pernicious anaemia in relapse. Dosage ranged from 1½ to 160 micrograms of Vitamin B_{12} and reticulocyte response and red blood cell counts were reported for all. The results were plotted in eight graphs and analysed statistically. The effect in sub-acute combined degeneration is being reported separately.

The original report should be consulted for evidence of the effects of Vitamin B_{12} over a wide range of dosage. To cover individual variations and to maintain reserves, initial dosage of 40 to 80 micrograms is recommended for uncomplicated cases, followed by 20 micrograms weekly for three months and thereafter 30 micrograms every three weeks. Patients with sub-acute combined degeneration should receive at least 40 micrograms weekly for six months and 20 micrograms weekly thereafter. Some cases may need more, and at any sign of relapse—lingual, haematological or neurological—the doses should be promptly doubled or trebled.

M. Sokolow and A. L. Edgar: *Blood Quinidine Concentrations as a Guide in the Treatment of Cardiac Arrhythmias.* (Circulation, New York (1950): **1**, 576-592.)

Blood and urine quinidine levels using the photofluorometric method of Brodie, as modified by Linenthal, were obtained in 72 patients, including 30 with auricular fibrillation and auricular flutter in whom conversion was attempted.

Successful conversion to sinus rhythm occurred in 28 of 34 attempts in 30 patients (82%). The average peak blood level in the cases converted was 5.9 mg. per litre; 75% of the patients converted to normal rhythm at levels between 4 and 9 mg. per litre. These blood levels were obtained with quinidine dose schedules of 0.4 or 0.6 gm. every two hours for five doses.

Blood levels higher than 9 mg. per litre were obtained in six patients but resulted in conversion to sinus rhythm in only two patients. Of the 28 successful conversions, only two required levels of 10 mg. per litre or more. Of the six patients in whom normal rhythm was not restored, levels of 10 mg. per litre or more were obtained in four patients. The likelihood of successful conversion is relatively small if high doses and blood levels are required.

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VAN DIE REDAKSIE

EDITORIAL

PEMPHIGUS

Die bestudering van die weefselleer van pemphigus is wellig die mees belowende wyse waarop die verskillende pemphigus-agtige groepe van letsels onderskei kan word. Civatte het dit benadruk dat dit nie die posisie van die blasies is nie, maar die voorafgaande oplossing van die stekellaag, wat die uitkenningskaraktertrek is van pemphigus. By dermatitis herpetiformis kom die huidveranderinge eerste voor, daar is geen vervloeiing van die stekellaag nie en die bullae word derhalwe onder die ongeskonde opperhuid gevorm. Tzanck, van die St. Louis Hospitaal te Parys, het langs hierdie weg in 1948 'n toets ontwerp, waardeur skraapsels, uit die bodem van 'n blasie, geverf en ondersoek word vir die aanwesigheid van veranderde opperhuidselle. Dit is die aanwesigheid van hierdie vervloeide stekellaagstelle van die epidermis wat 'n toestand van pemphigus aandui, terwyl in skrapsels van die blasies van dermatitis herpetiformis, daar verskeie soorte geinflammeerde selle te sien val. 'n Positiewe Tzanck-toets is derhalwe ontwyfelbaar waardevol.

Daar bestaan geen bepaalde behandeling vir pemphigus nie en die beoordeling van enige besondere middel word baie bemoeilik weens die spontane terugwykings wat die toestand kenmerk. Daar is feitlik geen middel wat nie op die een of ander tyd aangewend is nie en elkeen het beurtelings 'n tydperk van geesdrif deurlewe voordat dit weer agterweë gelaat is as ondoeltreffend. Die meer resente lewebenemende middels en Kortisoon het nuwe hoop laat herlewe en word nog op die proef gestel. Die lewebenemende middels het blykbaar geen invloed op die verloop van die siekte nie, afgesien daarvan dat dit bykomstige ontsteking beheers. Kortisoon en ACTH word nog beproef. Intussen bly die arseenpreparate, veral Karbasoon en Suramin, steeds maar nog die steunpilare. Dit is baie waarskynlik dat Kortisoon en ACTH 'n tydlik voordelige invloed uitoefen, wat die gebruik van ander middels toelaat om te werk, waar hul andersins daartoe geen kans sou kry by die pasiënt wat erg siek is nie. Sulzberger gebruik hoë dosisse ACTH saam met Suramin. Die koms van hierdie hormones het ons belangstelling gaande gemaak oor die gemiese bestudering van die siekte, asook van die hormones in die algemeen en mag nog tot die oplossing van hierdie vraagstuk en die genesing van pemphigus lei.

The study of the histology of pemphigus is perhaps the most promising means of distinguishing the various members of the pemphigoid group. Civatte has stressed that it is not the site of the bullae, but the preliminary acantholysis which is the diagnostic feature of pemphigus. In dermatitis herpetiformis the dermal changes occur first, there is no acantholysis and the bullae are therefore formed beneath the intact epidermis. In 1948 Tzanck of the St. Louis Hospital, Paris, working on this basis, devised a test by which scrapings of the floor of a bulla are stained and examined for the presence of altered epidermal cells. It is the presence of these acantholysed epidermal cells which indicates a condition of pemphigus, whereas in scrapings from the bullae of dermatitis herpetiformis various types of inflammatory cells and normal epithelial cells are seen. A positive Tzanck test is of undoubted value.

There is no specific treatment for pemphigus and the assessment of the value of any particular medicament is rendered extremely difficult because of spontaneous remissions which are a feature of the condition. There is hardly a drug which has not, at some time or other, been tried, and each in turn has enjoyed a period of enthusiasm before being abandoned as ineffective. The more recent antibiotics and Cortisone raised fresh hopes and are still on trial. The antibiotics, it appears, apart from controlling secondary infection, do not influence the course of the disease. Cortisone and ACTH are still on trial. In the meantime the arsenicals, particularly Carbarsone and Suramin, still remain the stand-by. It is highly possible that Cortisone and ACTH have a temporary favourable effect which may permit the use of other agents which otherwise would not have time to act in a severely ill patient. Sulzberger combines high doses of ACTH with Suramin. The advent of these hormones has stimulated our interest in the chemical study of the disease and of hormones in general and may yet lead to a solution of the problem and to a cure of pemphigus.

STUDIES ON PAIN

III. SOME OBSERVATIONS ON SURGICAL TREATMENT IN 65 CASES

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(*Concluded from p. 715*)

8. INTERRUPTION OF SYMPATHETIC INNERVATION OR AFFERENTATION ANATOMICALLY ASSOCIATED WITH THE SYMPATHETIC

The sympathetic denervation of a painful part must be complete, otherwise it will be useless. To achieve this adequate exposure is all important; it is significant that one sees pain that persists after sympathectomies carried out through incisions that cannot possibly give sufficient access to the deeply-lying sympathetic chain and its rami (Cases 60, 61). The operations can sometimes be quite difficult enough without trying to work through button-holes.

Two types of procedures have been observed in this series—chemical sympathetic interruption with Novocain or alcohol, and operative sympathectomy. The pertinent details appear in Table V. In 24 cases chemical interruption was performed. In most instances this was for post traumatic pain, mainly in soldiers, who were sometimes evacuated to the United Kingdom within a few weeks, in others observation could continue for up to seven months after blocks. Three soldiers were returned to full duty within three to six weeks (Cases 32, 39, 42). It is instructive to note that a post-traumatic painful state of some months' duration was given dramatic relief by only one paravertebral injection of Novocain in seven instances (Cases 1, 36, 37, 38, 39, 40, 51). In others multiple injections were necessary. Temporary or partial relief was obtained in seven instances (Cases 34, 35, 44, 45, 47, 49, 55). The result was quite unsatisfactory in two instances (Cases 50, 52).

TABLE V.—INTERRUPTION OF SYMPATHETIC INNERVATION OF AFFERENTATION ANATOMICALLY ASSOCIATED WITH THE AUTONOMIC SYSTEM

Case	*Cause of Pain*	*Procedure(s)*	*Result*
1*	Trauma	Novocain block (1)	Relief (6 months)
5*	Trauma	Sympathectomy—Satisfactory	(Pneumothorax) relief (18 months)
6*	Trauma	Sympathectomy	Relief (18 months)
8*	Amputation	Sympathectomy	Unsatisfactory from start
32	Trauma	Novocain block (2)	Relief (+) (acute syndrome 6 weeks)
33	Trauma	Novocain block (2)	Relief (acute syndrome 3 months)
34	Trauma	Novocain block (2)	Temporary relief
35	Trauma	Novocain block (4) Sympathectomy	Temporary relief Relief (5 months)
36	Trauma	Novocain block (1) (+ infiltration of scar)	Relief (4 months) Pneumothorax
37	Trauma	Novocain block (1)	Relief (few weeks)
38	Amputation	Novocain block (1)	Relief (few weeks)
39	Trauma	Novocain block (1)	Relief(+) (3 weeks)
40	Trauma	Novocain block (1)	Relief (6 months)
41	Trauma	Novocain block (2)	Relief (5 months)
42	Trauma	Novocain block (2)	Relief(+) (6 weeks)
43	Trauma	Novocain block (2)	Relief (4 months)
44	Trauma	1. Novocain block (2)	Partial temporary relief
		2. Sympathectomy	Relief (3 months)
45	Trauma	Novocain blocks (3)	Temporary relief
46	Trauma	Novocain block (2)	Relief (7 months)

TABLE V (*continued*)

Case	*Cause of Pain*	*Procedure(s)*	*Result*
47	Trauma	Novocain blocks (3)	Slight relief (few weeks)
48	Trauma	Novocain block (2)	Relief (few weeks)
49	Amputation	Novocain block (1)	Partial relief (few weeks)
50	Trauma	Novocain block (1)	Unsatisfactory
51	Trauma	Novocain block (1)	Relief (few weeks)
52	Trauma	Novocain block (1)	Unsatisfactory
53	Chemical burn	Sympathectomy (elsewhere)	Unsatisfactory
54	Chronic iliofemoral thrombosis	Sympathectomy	Relief
55	Inoperable carcinoma of cervic complicated by iliofemoral thrombosis (acute)	Novocain block	Temporary relief
56	Carcinoma of prostrate cystitis complicated by iliofemoral thrombosis (acute)	Alcohol block Novocain blocks	Relief Relief
57	Chronic iliofemoral thrombosis	Sympathectomy	Relief
58	Chronic iliofemoral thrombosis	Sympathectomy	Relief
59	Angina pectoris	Sympathectomy	Relief
60	Trauma	Sympathectomy (elsewhere)	Unsatisfactory
61	Trauma	Sympathectomy (elsewhere)	Unsatisfactory

Sympathectomy had been performed elsewhere in three cases (Cases 53, 60, 61), which were referred because of unsatisfactory result. In two this could be attributed to inadequate denervation. In Case 53 an adequate procedure had undoubtedly been performed; the issue was complicated by a chain of unfortunate domestic troubles and a strong suspicion of wilful perpetuation of a large chemical burn. In eight other sympathectomies, an unsatisfactory result was noted in one instance (Case 8).

Kallio, of Helsinki (1949), has given a very gloomy picture of sympathectomy in the treatment of phantom limb pain. In only six of 68 patients so treated was there complete relief for periods of one to four years.

TABLE VI.—LEUCOTOMY (BILATERAL)

Case	*Cause of Pain*	*Result*
20*	Further extension of carcinoma of pancreas	Relief—Profound mental deterioration
62	1. Aggravation of a typical facial pain by trigeminal section	Few months' relief only
	2. Repeat of leucotomy	No relief
63	Cerebral vascular lesion with painful hemiplegia	Relief (6 months)
64	Widespread metastases from carcinoma of palate	Immediate relief

White (1950) has re-emphasized the value of sympathectomy in abolishing pain from heart, aorta and abdominal viscera, and its lack of value when the majority of afferent fibres run in the vagi or sacral nerves, as with oesophagus, bladder or cervix uteri. He also affirms the value of this 'safe and harmless' type of procedure in controlling post-traumatic pains.

Section of Association Pathways. Experimental, clinical and anatomical studies have indicated an association between cortex and thalamus via cycles of to-and-fro projection pathways. It is starting to look as if, in its broadest interpretation, the ultimate awareness of sensation, probably including pain-perception, or perhaps pain-creation, is dependant upon the interplay of large areas of subcortical and cortical cell masses not in juxta-position with one another.

The mass human experiment of prefrontal leucotomy has illustrated the immediate importance of cortico-thalamic connections. Its more recent application in the treatment of intractable pain has indicated its place in modifying the affective component thereof. It is commonly stated that the patient still has pain but it no longer distresses him, though his threshold for appreciation of externally applied stimuli of physical nature remains unimpeded. Experience with this procedure for pain relief in this series is very small but, from a more general experience of the operation, it can be stated that a distinct danger lies in the apparent simplicity of this operation, and it is feared that it might be undertaken too lightly. The number of cases in which the operation had had to be repeated, for indications other than pain, has shown that it is only too often not done properly. The number

of individual technical variations that are creeping into this operation, only some of which have been published, indicates a general dissatisfaction among neuro-surgeons, who are trying to see more of what they are doing without making the operation a major undertaking.

A *laissez faire* attitude is aimed at after operation, but it must be admitted that there are many unpredictable character changes from case to case. It is a good rule not to perform leucotomy in a wage-earner, if it can possibly be avoided.

Bilateral leucotomy has been performed in this series. Case 62 is particularly instructive. Here pain recurred after operation, and in the belief that this may not have been complete, a second bilateral leucotomy was performed by a method providing good visualization of the manoeuvres. No relief was obtained.

White (1950) considers that frontal leucotomy is not justified if pain can be eliminated by other means. When it is necessary, unilateral section should first be done. In 11 of 13 cases this gave adequate relief, 'especially if the patient lived for only a few months'. Section of the opposite side is indicated by recurrence of pain—the staged procedure produces less severe mental disturbance than the initial bilateral section.

Scarff (1950) reported on 58 cases of unilateral prefrontal lobotomy for pain. In 66% there was no further voluntary complaint of pain and no need for narcotics—many cases died within a few months of the basic illness, and the average follow-up was five months. In 20% partial relief was obtained and in 14% there was no control of pain. The operation interposes a partial barrier between pain reception and perception. If sensory bombardment increases, e.g. as carcinoma spreads, or if the lesion impinges directly on large sensory nerves, failure is likely.

Rowe and Moyar (1950) carried out unilateral prefrontal lobotomy on 16 patients with intractable pain from various causes. Among the first nine cases only one had complete relief. The technique of operation was modified to give better vision and more complete section. In the next seven cases all had more satisfactory relief.

Le Beau (1950) reports usual good results with bilateral cortical excision of about 20-25 gm. of tissue (topectomy).

Horanyi, of Budapest (1949), states the prefrontal leucotomy has no effect on pain caused by stimuli to the skin. Stender, of Berlin (1948), reports relief from a case somewhat similar to Case 63, but arising from an attempt at suicide, by unilateral prefrontal leucotomy—follow-up was for five months.

More precise methods of thalamotomy and mesencephalothalamotomy, using a stereotaxic instrument and making electrolytic lesions in the dorsomedial nucleus of the thalamus, or in the spinothalamic tract in the midbrain are in the process of development (Wycis and Spiegel, 1949).

Attention has previously been drawn to the earlier disappointments in removal of post-central cerebral cortex for pain (1948). Bailey (1949) has subsequently reported on the failure of such procedure to relieve pain.

THE CAUSES OF FAILURE

Certain causes of failure of surgical treatment seem clear enough, especially if we come to recognize circuits of neuronal activity rather than isolated conducting pathways, and even more especially if we accept peculiar integrations within these circuits by facilitation. There is an analogy to the mechanisms and surgical treatment of epilepsy (1949, 1949a).

At first sight, one of the most obvious causes of failure would be the persistence of the peripheral initiating lesion. This has obtained most clearly in Case 53, and possibly in Case 14, but it should be emphasized that there has been no clear-cut evidence of such a mechanism in any other case, except in Case 20, where pain reappeared only consequent upon spread of the pathological process above the pain-deafferented level. The relief afforded in cases of carcinoma progressing to death is most striking. Elsewhere (1951) the well-known inefficacy of amputation in relieving pain has been stressed. So the bulk of evidence is against the importance of such a mechanism of initial discharge causing failure of surgical treatment. It is also important to remember that in Case 53 there were very definite social and domestic maladjustments. In Case 14 a hydronephrosis became apparent some months after rhizotomy. The unanswerable suggestion was made, however, that this may have been associated in some way with the interruption of nervous impulses from the kidney.

Operation on peripheral nerves have been the most disappointing, 12 definite failures in at least 16 operations on 13 patients. The rôle of the artificial synapse has already been mentioned. This stresses once again circuit activity in the one and indivisible nervous system. It is instructive to observe that the best apparent results from peripheral nerve surgery, in the relief of post-traumatic pain, have been claimed in a large series where operation was supplemented by sleep therapy (Kaminsky, 1946). The only sufficiently well proved instance of lasting pain relief in the present series (Case 11) is that of an intelligent, capable man holding a responsible position on the administrative staff of a large hospital.

The transference of pain after chordotomy in Case 18 has been discussed and appears to be bound up with inadequate operative denervation, which has also been referred to among the sympathectomies.

The recurrence of pain after leucotomy and its failure to respond to repeated similar operation may be particularly important. It may indicate that new association pathways may replace those between thalamus and frontal cortex upon which affect is alleged to depend.

It is interesting that the consideration of pain in general ends where it began, with the personality. Long before any of us take up the study of medicine, we know that all people do not react similarly to the same situations. In the dreadful panic of examinations that follow in all too quick succession we forget many truths, they seem to lose their importance. Then, suddenly, we leave the cloister and have to face life in earnest. There may be a spell in which we can contemplate, but it usually passes quickly. When our patients most need our help, our judgment is clouded by emotions, our own, their's, and those of their relatives. We tend to hasty conclusions and precipitate actions, which sometimes haunt us in our few hours of leisure. More and more of our own personalities come to direct those actions which should depend on nothing but impassionate, unbiased, logical intellectual processes, based on reasonable premises. If they do not, we learn nothing from experience, but to pile error upon error.

We know that to have pain is one thing, to complain another. We know that pain grows with complaint. We know that even the hardy can become weak, that all men are not always the same. We are coming to realize that mind and matter are so closely related in this existence that the former distinctions of 'functional' and 'organic' hardly obtain. It may be in the dawning of this realization that we will find a bright star of medicine, giving it a future undreamt of in our technical world.

SUMMARY AND CONCLUSIONS

Sixty-five instances of attempts at relief of severe pain by various surgical procedures have been reported. The following tentative conclusions seem justifiable:—

1. The least satisfactory results attend interruption of peripheral nerves.

2. Posterior rhizotomy is strongly contra-indicated if it denervates a significant part of a limb.

3. Interruption of spino-thalamic pain conducting pathways is a most useful procedure, provided it is carried out at a level sufficiently high above the pain-initiating lesion, and in the absence of certain definite contra-indications.

4. The ill-effects of chordotomy have been exaggerated, but the patient must be instructed to empty the bladder at regular intervals.

5. Temporary chemical interruption of sympathetic pathways may significantly break a cycle of pain.

6. Operative sympathetomy must be complete for the affected part.

7. Pain may recur after adequate prefrontal leucotomy.

8. In selecting methods of pain-relief surgery, the expectation of life in a given case is most important.

9. A potent cause of failure is inadequate denervation.

10. The 'psychological' make-up of the patient is perhaps an important cause of failure.

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GARGOYLISM

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and

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The *Oxford Shorter English Dictionary* describes a gargoyle as a 'grotesque spout, representing some animal or human figure, projecting from the gutter of a building'.

The word was first applied by Ellis, Sheldon and Capon [1] in 1936, in a search for a comprehensive title which would describe the picture made up by the large head, grotesque inhuman facies and deformed limbs, which cause the unfortunate victims to look very much alike and makes the condition easily recognizable.

One or more signs of the disease may be apparent soon after birth, but it is usually first recognized during the second six months of life, and the full picture is seen by about the fourth year. Jervis,[2] reviewing a large series of cases, found males to be affected about twice as commonly as females, and attention has also been called to the fact that many of the affected children are abnormally large at birth. In the literature, 15 of the case reports mention the birth weight, and in 10 of these this was 8½ lb. or over.

Although the disease has been reported from many parts of the world, about 150 cases having been described, the present authors are aware of only one other report of its occurrence in South Africa, Jackson [3] having lately written of the condition as exemplified by three members of a Cape Town family, who show the disease in an incomplete form.

The purpose of the present article is to report another case of gargoylism in a fairly complete form recently seen in Cape Town.

CASE REPORT

H. R., a European male infant, was admitted to the paediatric wards of Groote Schuur Hospital on 30 April 1951, at the age of five months.

His birth and early development appear to have been normal, except that he had always been restless and difficult to manage. Three weeks before admission he had undergone a successful operation elsewhere for a strangulated right inguinal hernia.

At about four months of age the parents noticed that the

baby's head was growing larger, and at about the same time they remarked on the haziness of his eyes.

The patient is the third child of healthy, unrelated parents. There is a healthy sib aged two years, the first child having died 12 hours after birth, seemingly from an intracranial haemorrhage.

Examination of the patient revealed an irritable baby with a very large head and most unbabylike features. The head was hydrocephalic with sutures widely separated and all the fontanelles very large. The circumference of the head measured 20½ inches (normal for age, 17 inches), and the circumference between the external auditory meati was 15½ inches (normal for age, 12 inches).

The face was coarse, the corneae hazy, the ears were set low and the nose flattened (Figs. 1a and 1b). Noisy respiration suggested a nasal obstruction. In addition, the eyebrows were heavy and the palate highly arched and much thickened.

The liver extended two and a half finger-breadths below the costal margin, and the spleen was just palpable. A commencing umbilical hernia was present, and the scar of a recent operation for a right inguinal hernia was seen.

The hands were kept tightly clenched, and although the fingers could be opened by the examiner, this was never done voluntarily by the child himself. No other limitation at joints was apparent and there was no kyphosis.

Body measurements were approximately normal for the age, although it was thought that the arms were perhaps a little short in proportion to the rest of the body. (Total length, 28½ inches; crown-rump length, 19 inches; anterior superior spine to lower border of internal malleolus, 11 inches; and tip of acromion to radial styloid, 7¼ inches).

In view of the hazy corneae and uncertainty regarding the infant's powers of hearing, it was difficult to be sure about the mental state. He could not hold up his head, but the hydrocephalus could, of course, account for this. Nevertheless, the child's irritability since its earliest days, its total lack of interest in its surroundings or in the arrival of its feeds, suggested that some degree of mental retardation was present.

No other abnormalities were found and the heart appeared normal on clinical and electrocardiographic examination.

Laboratory Examinations. The cerebrospinal fluid, apart from being under considerable pressure, was in all respects normal. The Wassermann reaction in blood and cerebrospinal fluid was negative. Examination of blood and urine showed no departure from normal, and the serum cholesterol was also within normal limits (185 mg. per 100 c.c.).

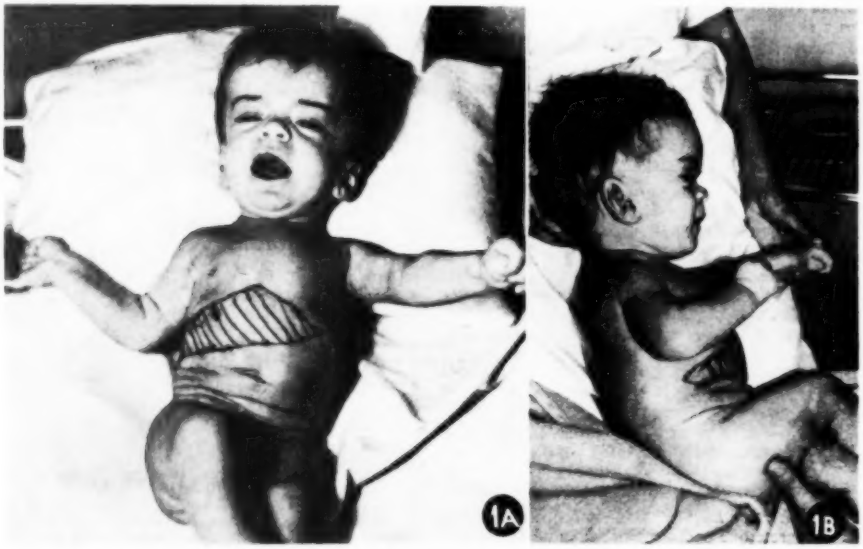

Fig. 1a. H. R., aged five months. Enlarged liver marked out. *Fig. 1b.* H. R., side view. Note flexed fingers.

X-ray Examinations: Vertebral Column. The bodies of the 12th dorsal and the first and second lumbar vertebrae showed the 'beaking' of their lower parts usually described in gargoylism (Fig. 2).

Chest. The anterior ends of the ribs appeared much broader than one would expect to see in a normal subject (Fig. 3).

Hands. The metacarpals and phalanges showed an abnormal degree of broadening of their bodies (Fig. 4a). The carpal bone formation was normal for the age.

The *skull* did not show any abnormalities apart from

The nightly descent into the abyss

'Enuresis' is one of the commonest disorders of childhood. It is accepted that one of its important causes—in adults as well as in children—is a greater depth of sleep than normal, with the result that afferent impulses from the bladder fail to waken the patient. The rational therapy in such cases is to render sleep less profound, and so 'prevent the nightly descent into the abyss'. This can be achieved safely and effectively by 'Benzedrine' Tablets, given at bedtime in increasing dosage till the optimum response is obtained. Enuretic children show a marked tolerance to this drug, and can take up to five 'Benzedrine' Tablets nightly without sleeplessness.

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the hydrocephalus. No further studies were made on the child, who was discharged to his home in the country.

REVIEW OF THE LITERATURE

Historical. Henderson [1] states that the disease was possibly first recognized by Dr. John Thomson of Edinburgh in the early years of this century, though he did not publish his views.

The first publication was by Hunter [5] in 1917, when he described what he called a 'new disease' occurring in two brothers, who showed many of the salient features. He emphasized how extraordinarily alike the two patients were, and he also stressed the skeletal involvement.

Fig. 2. Radiograph of vertebral column. Deformity of D. 12 and L. 1 and 2.

Two years later, Gertrud Hurler reported two cases from Pfaundler's clinic in Munich and, to Hunter's description, added clouding of the cornea and mental defect.

In 1936 Ellis [1] and his colleagues analysed the syndrome from seven of their own cases, and eight others in the literature at that time, and suggested the name which has now come into general use, though the condition is still known by some as Hurler's disease, the Hunter-Hurler syndrome, or dysostosis multiplex. The term lipochondrodystrophy was coined by Washington,[6] but has since been withdrawn by him in favour of gargoylism as the most widely used term and the one easiest to remember.

CLINICAL MANIFESTATIONS

1. *General.* A large head with ugly features appears to sit directly on the shoulders with no intervening neck. The scapulae are high and there may be a pigeon chest with some flaring of the lower ribs. Below this is the distended abdomen, in which the liver and spleen are enlarged, and an umbilical hernia is often present. Sometimes there may be an inguinal hernia, as in the case described in this paper. Some degree of limitation of full extension at the joints occurs, being most marked in the hands, but also found at the elbows and shoulders. It is less evident in the legs.

Diffuse corneal clouding was first noticed by Hurler and later stressed as an outstanding feature by Helmholz and Harrington.[7] The nose is flattened and chronic nasal obstruction follows, with rhinitis and noisy, snorting respiration. The eyebrows may be thick and coarse in contrast to the scalp hair, which is fine and silky. A high arched palate, large fissured tongue, thick lips, low-set ears and a harsh voice, accompanied in some cases by deafness, are further abnormal findings in this strange condition.

It is doubtful whether the mentality is ever normal in the complete picture of gargoylism, though the degree of defect may be difficult to determine in the early years if the sight and hearing are both poor. Many of the children are spiteful and difficult to control and, being grossly defective, sooner or later require institutional care.

2. *Bone Lesions: Head.* This is nearly always enlarged, and commonly scapho- or brachycephalic. Hydrocephalus is quite often found, and Strauss [8] believes this to result from bony deformities at the base of the skull compressing the hind-brain at the foramen magnum. The sella turcica may be elongated and shallow, more probably from bony overgrowth than from enlargement of the pituitary gland. Malformation of the nasal bones results in the snub nose, while the mandible may be more massive than is usually the case.

Trunk. The anterior ends of the ribs are broad and ribbon-like; the glenoid and acetabular fossae, on the other hand, are often shallow and poorly formed.

Vertebrae. A malformation of two or three of the vertebral bodies, especially in the upper lumbar region, is one of the most constant findings. There is a failure of normal growth of the upper part of the body, so that the normal lower portion appears to project forward as a lip or beak. A dorso-lumbar kyphosis commonly occurs and this deformity may be present by the third month of life.

Limb Bones. The long bones tend to be shorter than normal and to be broader in the middle of their shafts than at the ends—the opposite of what is found in achondroplasia. This broadening and shortening is especially noticeable in the metacarpals and phalanges. The carpal bones frequently show retarded ossification, and irregular epiphyseal formation is usual at the growing ends of the long bones. Engel [9] has pointed out that a number of these patients have a Sprengel-type deformity of the scapulae.

General retardation of growth occurs, though it is not

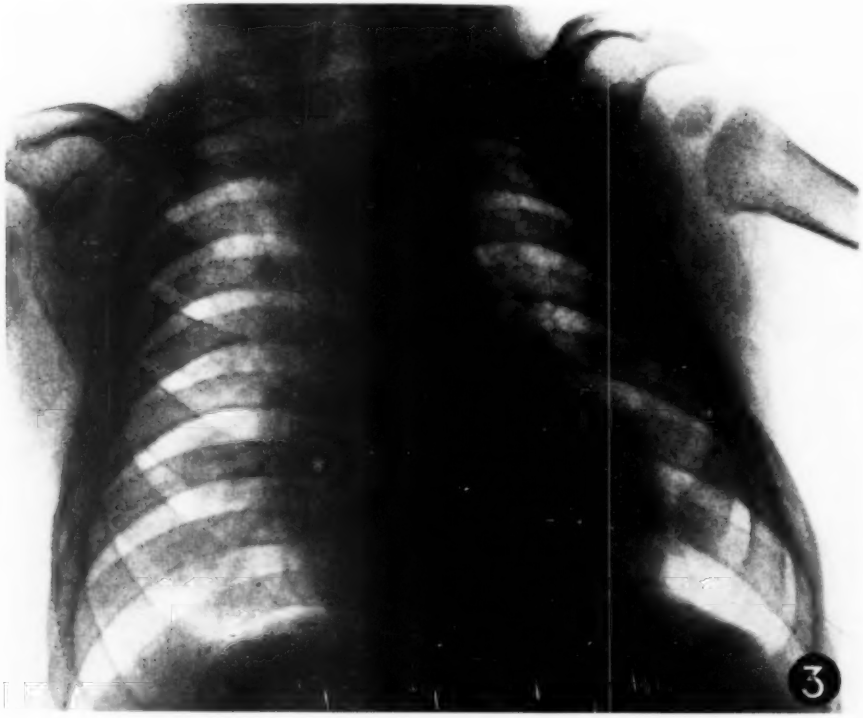

Fig. 3. Radiograph of chest. Broad, ribbon-like, anterior ends of ribs.

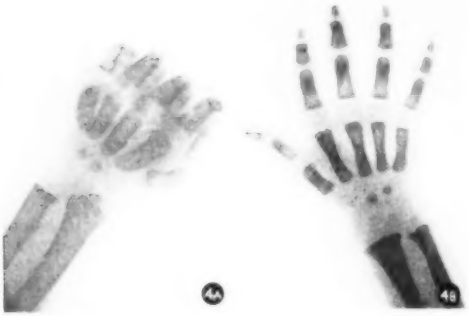

Fig. 4a. Radiograph of hand of H. R. Note flexion and abnormally broad metacarpals and phalanges.
Fig. 4b. Radiograph of the hand of a normal child of five months, for comparison with Fig. 4a.

usually apparent until the second year of life. Thereafter the affected children become dwarfed, the effect being accentuated by the kyphosis and the very short neck.

Transmission and Familial Incidence. Gargoylism is a congenital disease, probably inherited as a recessive trait. Several authors have mentioned its familial nature, among others Henderson,[4] who quotes three examples in one family and two in another; and Ross and his colleagues,[10] who describe the condition in two sisters, pictures of whom are frequently shown when gargoylism is discussed.

PATHOLOGY

In the first autopsy report on one of these cases in 1934, Tuthill [11] found swollen cells in all parts of the brain, and considered that the neuropathology was typical of the juvenile form of amaurotic idiocy, his report, in fact, being given this title. The patient was one of the two originally described by Hurler in 1919, and Tuthill's account of the clinical features, together with the accompanying photograph, leaves little doubt that this was a case of gargoylism.

Ashby *et al.*,[12] in 1937, reported two autopsies, and agreed with Tuthill's histological findings and interpretation. They believed the substance filling the swollen cells to be a cerebroside and that the condition should be classed with the disorders of lipoid storage, mentioning several points of resemblance.

Ellis,[13] subsequent to his paper with Sheldon and Capon, presented another case at a meeting of the Royal Society of Medicine in 1936, and suggested that the condition was a metabolic disorder, possibly comparable with Gaucher's disease.

Buchanan,[11] in a description of gargoylism, states that 'examination of the sternal marrow or needle biopsy of the liver or spleen reveals lipoid infiltration of many of the cellular elements and thus confirms the diagnosis'.

In 1948, Lindsay and co-workers,[15] in America, studied the pathology of the disease in detail. They found a typical appearance in parenchymatous, reticulo-endothelial and connective tissue cells all over the body. This consisted of swelling of the cells, with the cytoplasm either vacuolated or containing fine granular deposits which were difficult to identify. Infiltration of the skin and periarticular structures by these swollen cells was, in their opinion, the chief cause of the limited movements at the joints; while they considered that involvement of the pituitary gland was, at least partly, responsible for the retarded growth. They also described infiltration of the connective tissue cells of the larynx, and this may account for the hoarse voice often heard in gargoyles.

These authors believe the stored substance to be, not fat, but glycogen, and maintain that the condition is an unusual type of glycogen storage disease.

Strauss [8] remarks that the typical swollen cells are also found in cartilage, which is largely in the resting stage with little proliferation. She was unable to confirm the presence of glycogen in these cells but, at the same time, was not prepared to say that this was lipoid.

Jervis [2] has also been unable to determine the nature of the stored substance, but states that preliminary analysis shows the material to contain nitrogen, phosphorus and a sugar. He found no deposit of abnormal matter in cartilage, agreeing with most other workers that the skeletal lesions are not due to abnormal storage.

Finally, there is the report of Lindsay [16] on the state of the heart in several cases coming to autopsy. All parts of the heart were infiltrated with the typical cells, but the most marked changes were found in the heart valves, where nodulations were seen; and in the coronary arteries, which showed marked intimal thickening. He concluded that these findings probably explain the sudden death which occurs so frequently in gargoylism.

DIAGNOSIS

The diagnosis of gargoylism is as easy as in the case of mongolism or achondroplasia, if one has previously seen a case. To those who have not seen the condition, it may present considerable difficulty. It is justifiable, therefore, to consider the following diseases in differential diagnosis.

Cretinism has, in the past, sometimes caused difficulty, but the typical facies and bone lesions of the gargoyle, and lack of response to thyroid therapy, should serve to identify the condition.

In *Morquio's type of osteochondrodystrophy* the lesions are entirely in the osseous system, and the visceral changes found in gargoylism are not present. Some of the incomplete forms of gargoylism, which some writers think constitute the majority of cases, may give rise to some difficulty; but if in addition to the bone lesions there is mental defect, a large head, cloudy corneae, or the characteristic facies of gargoylism, mistakes should not be made. In one remarkable family in Germany, reported by Bocker (and quoted by Reilly and Lindsay [17]), of 11 children, two were said to be gargoyles and another two to be afflicted with Morquio's disease. In the absence of the original paper, it is not possible to be sure how strict the diagnostic criteria were, but one would suspect that the affected children were all gargoyles.

There may be points of superficial resemblance in cases of *achondroplasia, congenital syphilis* and *hydrocephalus* from other causes, but there should be no real danger of mistaking a gargoyle for any of these.

PROGNOSIS

In the complete forms of the disease the average age at death is about 10 years, although the expectation of life, in incomplete varieties, is much greater. The commonest cause of death is a sudden heart failure, and most of those who escape this die from pneumonia.

It is necessary that parents who have had one of these children should be warned of the possibility that the condition may recur, as there is a 1:4 chance of any future child being affected.

COMMENT

In gargoylism there are two sets of clinical findings: osseous and visceral. The question may therefore be asked whether gargoylism is a condition in which an infiltration with some substance gives rise to the visceral lesions alone, the bony involvement being due to some other cause, or whether all the effects can be accounted for by a generalized infiltration of the whole body. The former view is the one most favoured, but there is not general agreement on this point. The nature of the infiltrating substance is not settled either, and further pathological studies are needed to clarify the matter.

The case reported here shows most of the features of gargoylism at an unusually early age, and these will probably become more marked as the child gets older. As a severe degree of hydrocephalus is present in addition, the prognosis is presumably even worse than the usual one of about 10 years.

SUMMARY

Gargoylism is a condition in children characterized by a large head, resting on a very short neck, with coarse features and corneal haziness. The abdomen is distended by a large liver and spleen, and an umbilical hernia is often present. A dorso-lumbar kyphosis and limbs which appear too short for the body, with some limitation of full extension at the joints, in a mentally deficient child who may also be deaf, complete the picture in this most remarkable disease.

A review of the literature is made to bring out the historical, clinical and pathological features of gargoylism, and a report of a case of this condition is presented.

ADDENDUM

Since the above report was submitted for publication, another infant, six months old, was seen in a surgical ward in Groote Schuur Hospital. While the signs were not as marked as in the first case, there is little doubt that this too was a case of gargoylism.

The head was brachycephalic, the nasal bridge flattened and the voice hoarse. There was slight liver enlargement and an inguinal hernia was present, but the chief point of diagnostic importance was clouding of the corneae, which was undoubted. Radiographs showed early changes in a lumbar vertebra and broadening of the metacarpals and the phalanges. No limitation of joint movement was apparent and the mentality did not appear particularly abnormal, although the child, like the previous one, was rather irritable.

We are grateful to Dr. Wolf Rabkin, Head of the Department, to whose Wards the patient was admitted, for permission to report this case, and for his advice and criticism. Thanks are due to Mr. Hamilton Bell for permission to mention the case referred to in the Addendum. We are indebted to Mr. G. McManus for the photographs and X-ray reproductions.

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FOREIGN BODIES IN A RECTUM

AN UNUSUAL COLLECTION

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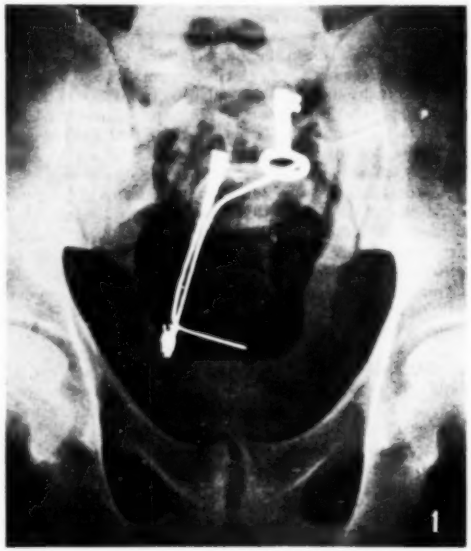
A 38-year-old Native male staggered into the Casualty Department early one Sunday morning, complaining of slight rectal discomfort, and requesting that his spectacles and suitcase key—which he alleged had been forced up his rectum by a friend the previous night—be removed.

Apart from a small superficial abrasion near the anus, there was nothing to lend credence to his story—the rectal and proctoscopic examinations revealing nothing definite. Despite this, however, an X-ray was taken, and this showed both the spectacles and the key in the ampulla of the rectum (Fig. 1). Dr. W. Silber removed these, together with a half-filled tobacco pouch and part of the *Week-End Argus*, which was used as a wrapping. The patient absconded before he could be referred to the Neurology Outpatient Department.

Discussion. The strangest and most fantastic objects have been discovered in the rectum, beer bottles[1] being the most popular. Others commonly found include tumblers, electric globes,[2] instruments and various fruits and vegetables. In fact, almost any object in common use has been found in the rectum. Perhaps the most amazing case was one reported by Gould and Pyle.[3] They describe how, at autopsy, a tool box containing a large assortment of breaking-out instruments was removed from the transverse colon of a convict, who died of intestinal obstruction, following the migration upwards of the box from the rectum.

In former times foreign bodies were inserted in the rectum as a form of punishment. In these more enlightened days the reasons for this practice can most commonly be found in sexual perversion. It is also reported in criminal assault and depraved practical jokes. Ingested foreign bodies may also occasionally present in the rectum.

Apart from manual removal, certain foreign bodies may



need special methods of extraction. An inverted tumbler may be most easily removed by packing it with gauze soaked in plaster of Paris and exerting traction. An electric globe needs improvised 'obstetrical' forceps in the shape of two table-spoons. Laparotomy may have to be resorted to in some cases. Most foreign bodies, however, can be removed directly under anaesthesia.

The interest of this case lies not only in its unusual nature, but also in the fact that it emphasizes the necessity of investigating fully every patient's complaints, however bizarre and unlikely they may sound.

Summary. A case report of a unique collection of foreign bodies in the rectum is presented, together with a brief review of the subject.

I am grateful to Dr. N. H. G. Cloete, Assistant Medical Superintendent, Groote Schuur Hospital, for permission to publish the case, and to Mr. G. McManus for his photographic reproduction of the X-ray film.

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NEW PREPARATIONS AND APPLIANCES

RESODEC (SKF)

Description. Resodec is one of a class of substances known as cation-exchange resins. Although new to medicine, cation-exchange resins have been widely employed in industry for the purification of foods and medicinal substances. It is a refined, white, easily pouring powder—insoluble and virtually inert because of its structure.

Indications. Resodec gives the physician the first *positive* means of achieving sodium control in congestive heart failure. It is indicated as an adjunct to the low sodium diet in the management of congestive heart failure and cirrhosis. This remarkable substance has the ability to remove excess sodium from the contents of the intestinal tract, and to carry it out of the body in the feces. Quantitatively, in the majority of cases, Resodec produces the effect of cutting the patient's salt intake approximately in half. With the removal of this excess sodium, the kidneys excrete excess fluid. Thus,

1. edema is controlled,
2. weight declines and
3. the load on the failing heart is markedly reduced.

Moreover, it must be emphasized with Resodec therapy, there is virtually no danger of sodium or potassium depletion.

Availability. Resodec is available now through the usual channels in cartons of 21 doses, sufficient for one week's treatment. Literature and further information may be had from the agents for Messrs. Smith, Kline and French Int. Co.—Philadelphia—Messrs. Pharmacal Products (Pty.) Ltd., P.O. Box 784, Port Elizabeth.

QUESTIONS ANSWERED

HEPARIN AND THE HAEMATOCRIT

Q. In an article on 'Haemythology' in a recent number of the *Journal*, 'Poliocyte' advises the use of heparin in the estimation of the packed cell volume in the haematocrit. Wintrobe (1942 ed. of his textbook) states that 7.5 mg. heparin dissolved in 1 c.c. of water is sufficient to prevent coagulation of 5 c.c. of blood—but to weigh this out is a scarcely less tedious process than preparing the usual ammon. oxalate—pot. oxalate mixture. I should be grateful if you could put me in touch with 'Poliocyte' so that I can ask him the particulars of his use of heparin in this very useful and simple haematological procedure.

A. '*Poliocyte*' writes: One unit of heparin is defined as the quantity that will prevent the coagulation of 1 ml. of blood. Any modern commercial heparin preparation contains at least 1,000 units per ml. of solution (approximately 10 mg.) and 1 ml. will therefore prevent the coagulation of at least 1,000 ml. of blood. There are about 20 drops in 1 ml. and one drop of heparin solution is thus sufficient for some 50 ml. of blood, and certainly more than enough for the usual 5 ml. of blood one takes for the haematocrit using Wintrobe's tubes. The reduction in the haematocrit that occurs by diluting 5 ml. (100 drops) of blood with one drop of heparin solution is completely negligible. Heparin in this and, for that matter, much higher concentration does not alter the volume of the red cells.

All that is necessary to collect the blood for the haematocrit estimation is therefore to add one drop of any commercial heparin solution to a test tube, add some 5 ml. of the patient's blood and shake gently. Weighing, drying and other preliminary procedures are unnecessary.

Wintrobe's statement was based on old impure heparin powders and does not apply to modern preparations. Perhaps another illustration of 'haemythology'.

MALIGNANT MALNUTRITION

Q. What is the treatment of malignant oedema of malnutrition commonly seen in Native children?

A. The oedema is *mainly* due to low serum protein concentration. This should be corrected by a diet high in protein and low in fat and carbohydrates, and in Native children is best provided by the traditional or modified 'Maas'. A detailed description of the use of 'Maas' in this disorder is given by Walt, Wills and Nightingale in this *Journal*, 4 March 1950. Serious cases may require transfusion. Associated parasitic and tropical diseases must be looked for and treated.

Q. Are the mercurial diuretics of any use?

A. No, unless cardiac failure is present.

Q. Is it true that the administration of vitamin preparations as a form of treatment can do harm?

A. They might conceivably harm if given without consideration to the main feature, which is protein starvation. It is essential to correct this first.

Q. How can one distinguish between this condition and beri-beri?

A. Clinically, chiefly by the characteristic hair and skin changes in kwashiorkor. In the diagnosis of beri-beri, various saturation tests are available. The saturation of the tissues with thiamine can be estimated by the quantity excreted in the urine after a peroral test dose of 1 mg. of thiamine. The normal response is 90 microgrammes or more, but is definitely less where there is thiamine deficiency.

ASSOCIATION NEWS : VERENIGINGSNUUS

GRIQUALAND WEST BRANCH: MEETING HELD ON 30 AUGUST 1951

REPORT OF MONTHLY MEETING

Dr. G. T. Tandy was in the Chair, and a fair number of members were present.

The *minutes* of the previous meeting were read and confirmed.

Other business, both association and general, was discussed and dealt with.

Clinical matters. Dr. Sleggs, Superintendent of the West End T.B. Hospital, delivered an interesting paper on *Modern Trends in the Treatment of Pulmonary Tuberculosis.* This was illustrated with a large number of X-ray pictures, both straight, tomographic, and bronchographic.

He stressed that 'Cure' is a dangerous term—only healing, that is the restoration of working capacity, is aimed at. The standard required is the closure of all cavities and a negative sputum. It is wrong to inform a patient that his treatment will be complete in a 'couple of months'. He should be told that a minimum of six months will be required.

Rest, local and general, is still the basis of treatment—complete bed rest while there are symptoms of toxaemia, and surgical treatment early rather than late. Surgery is required in a large number of cases. Streptomycin and PAS have demonstrated their value. Patients are classified roughly as temporary or permanent, and surgical procedures required depend on this classification which is basically on the pathology radiologically and clinically found. The results of surgery are generally good and the mortality rate in the most serious operative procedures is only 5%.

Dr. E. M. Rathouse, then, taking as his theme *The patient presented himself complaining of haemoptysis*, demonstrated radiologically a variety of non-tubercular conditions which can be responsible for this symptom, such as amongst others, hydatid cyst, bronchiectasis, lung abscess, congenital cystic disease of the lungs, virus pneumonia and malignant disease.

L. Schrire,
Honorary Secretary.

PASSING EVENTS

Dr. H. A. Shapiro, Editor of the *South African Medical Journal*, and Mrs. Shapiro (Dr. S. Machanick), return on Monday, 8 October, after attending the meeting of the Fifth General Assembly of the World Medical Association and the meeting of the Medical Editors of the World in Stockholm.

* * * *

Dr. I. Schrire of Cape Town returned on 18 September 1951 after a two-months' visit to England and the Continent.

* * * *

Messrs. Hanovia Limited of Slough, England, are celebrating the 25th Anniversary of their formation and have issued a pamphlet which is obtainable from their agents and exclusive importers, the British General Electric Company Limited of P.O. Box 2406, Johannesburg.

THE AMERICAN COLLEGE OF CHEST PHYSICIANS: ESSAY AWARD

The Board of Regents of the American College of Chest Physicians offers a cash prize award of two hundred and fifty dollars ($250.00) to be given annually for the best original contribution, preferably by a young investigator, on any phase relating to chest disease.

The prize is open to contestants of other countries as well as those residing in the United States. The winning contribution will be selected by a board of impartial judges and the award, together with a certificate of merit, will be made at the forthcoming annual meeting of the College. Second and third prize certificate will also be awarded.

All manuscripts submitted become the property of the American College of Chest Physicians and will be referred to the Editorial Board of the College journal, *Diseases of the Chest*, for consideration. The College reserves the right to invite the winner to present his contribution at the annual meeting. Contestants are advised to study the format of *Diseases of the Chest* as to length, form and arrangement of illustrations, to guide them in the preparation of the manuscript.

The following conditions must be observed:

(1) Five copies of the manuscript, typewritten in English, should be submitted to the executive office, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, not later than 1 April 1952.

(2) The only means of identification of the author or authors shall be a motto or other device on the title page, and a sealed envelope bearing the same motto on the outside, enclosing the name of the author or authors.

IN MEMORIAM

SIR WALTER JOHNSON

Sir Walter Johnson died in a nursing home in Cape Town on 5 July 1951. His distinguished Colonial Service and his original work in trypanosomiasis places his memory in the category of medical men whose lives have been spent in outstanding work in and for Africa.

Walter Burford Johnson Kt., C.M.G., M.B., B.S. (London), F.R.C.S. (England), was born in 1885. From the City of London School he won an open scholarship to St. Thomas's Hospital where he received his medical education, winning in 1908 the G. Wainwright Medal for general proficiency and later the Cheselden Gold Medal for surgery.

After holding various house appointments at St. Thomas's including that of surgical registrar he joined the Nigerian Medical Service in 1912 as a medical officer. A year later he was seconded for special investigation work on a yellow fever commission in Sierra Leone.

From then, till his appointment as Director of Medical and Sanitary Services Nigeria in 1929, his outstanding work was in scientific investigation, in the field and in the laboratory, into sleeping sickness and tsetse-fly control. As Director of Medical Services Nigeria he proved exceptional administrative ability and among his many activities he laid the foundations of a medical school for training Nigerian Medical Assistants.

On his retirement in 1936 he was commissioned by the Colonial Office to investigate and report on undulant fever in Malta.

In 1937 the 'Call of Africa' was such, that in preference to a high administrative post in London which he was offered, he accepted subordinate appointment as Superintendent of the Basutoland Leper Settlement, Maseru.

From 1944 till his death, he was Medical Advisor to the High Commissioner for the Territories Basutoland, Bechuanaland, Bechuanaland Protectorate and Swaziland.

In the 1914-1918 War he served as a captain in Nigeria. He represented Nigeria at the first Pan African Medical Congress, convened by the Union Government under the chairmanship of Sir Edward Thornton in Cape Town, where his contributions to discussion on yellow fever, sleeping sickness and other tropical disease were most informative and valuable. And at the British Medical Association Centenary Meetings in 1932, he presided over meetings in the section of Tropical Diseases. His distinguished work in Nigeria received

recognition by the award of C.M.G. in 1932 and a Knighthood in 1935.

Of a somewhat retiring disposition and of simple tastes, Johnson did not seek wealth or publicity, his unspoken impelling motive was service for others—this accounted for his not publishing his professional achievements or as a traveller, except for a few scientific papers on sleeping sickness which he published with Lloyd and Ramson.

His love of nature found expression in the beautiful gardens he made wherever he had his home, and he was never happier than when carrying out tsetse-fly research in the jungles and primeval forests, or travelling across deserts and among mountains and valleys in Africa, Europe and America. Endowed with a wonderful physique, fearlessness, and of tireless energy he undertook some formidable and hazardous journeys in remote parts of Central and North Africa. Of these his most remarkable achievement was a journey in 1930 from Lagos to London in a Ford truck accompanied only by his sister, Miss Mary Johnson, M.B.E. The route was through Northern Nigeria, across the Sahara to Algiers and Tangier, shipment over the Mediterranean, and on through Spain and France to Calais. At that time present-day facilities in the Sahara for refuelling and repairs were negligible. They had to carry on their truck the supplies of petrol, water, spare part, and food necessary for the long uncharted sand stretches between remote places where they might or might not refill.

Other great journeys by truck in Africa were from Lagos to Cairo through the Belgian Congo, Uganda, Kenya and the Sudan, returning to Lagos via Khartoum, Lake Chad and the Belgian Congo, and in 1936 from Lagos to Cape Town.

During the six years at the Basutoland Leper Settlement he and his sister, Miss M. Johnson, devoted their lives and much of their income in devising and creating interests and occupation for the patients. This included classes for the manufacture of rugs, etc., from raw wool, cinema shows twice a week, Boy Scout and Girl Guide Companies, etc. All of which contributed to the success of other therapeutic measures. He was unmarried; but, for the greater part of his service in Nigeria and during the latter fourteen years of his life in South Africa, his sister shared his home, where their cordial hospitality and friendship will long be remembered by their many privileged friends.

H. W. Dyke.

The Medical Department,
Maseru, Basutoland.
August 1951.

DR. JOHN A. WEIR

Dr. John Alexander Weir, of Solway, Milner Road, Rondebosch, died on 4 September 1951 after a short illness, aged 38.

He graduated M.B., Ch.B., at Cape Town in 1936 and was house surgeon to Professor Saint and Professor Crichton in turn. He went overseas in 1938 and was clinical assistant to Dr. Spence in the Paediatric Department of the Newcastle-on-Tyne Royal Victoria Infirmary. At the commencement of the 1939-1945 war he joined the South African Air Force as a medical officer and saved many a pilot from the disaster of overstrain and over-fatigue by his skill and clinical foresight.

While at university he received a blue for rugby and tennis. By coincidence he now joins two fellow blues of that 1936 team who have died in recent years—Piet Duvenage and Albert Albers.

In 1946 John commenced practice in Rondebosch where he became an increasingly loved and sought-after family doctor. He attended the families of at least 14 of his colleagues and this is sufficient tribute to his skill as a doctor and his standing in their eyes, apart from his qualities as a man, was as a friend to all who needed friendship.

When sickness brought sorrow—and when does it not?—then that sorrow became his too and he struggled unceasingly to comfort and to sympathize with relatives and patient apart from his constant medical attention. There was always the slap on the shoulder, the arm that encircled you, the friendly smile, the right word.

He had an analytical mind, but never uttered a harsh criticism of a colleague. He 'found tongues in trees, sermons in stones, books in the running brooks and good in everything'. His only intolerance was intolerance, and all that goes therewith. He gave every man his ear, but few his voice; took each man's censure, but reserved his judgment. His yardstick was truth, for truth's sake; he loved the Lord his God and he loved his neighbour as himself. This he showed always by being faithful in and doing little things as well as great, and thus made everyone who knew him conscious of his inner glory.

He married Peggy Duncan-Brown of East London in 1938, and was greatly blessed in his completely happy home life. To her, their son Alastair, and their baby daughter Margaret, we can offer, alas, only our sympathy.

R. D. H. B.

DR. M. A. DIEMONT

Dr. M. A. Diemont passed away at Stellenbosch on 1 September 1951 after a long illness.

He qualified in 1907 with honours at Trinity College, Dublin, where he also obtained his M.D.

Dr. Diemont first started his medical career in South Africa at Lindley, O.F.S., where he practised for some years. He then moved to Uitenhage and after a short period started a new practice at Oudtshoorn where he remained for 15 years.

It was during this period that strain and overwork began to tell the usual old tale and he began to realize that his health could no longer allow him to continue working by himself.

He then decided to semi-retire, and in 1934 became the late Dr. Macpherson's partner at Stellenbosch. His health, however, never really improved and after practising for some years he decided to retire completely and led a very quiet life up to the time of his death.

To his family we extend our sincerest sympathies.

F. B.

BOOK REVIEW

HOSPITAL IMPROVEMENTS

Hospital Improvements. How to Improve the Daily Life of the Patient in the Ward. By Olive Matthews. (Pp. 32, with illustrations. 1s. 6d.) London: Miss O. Matthews, 22 Harrington Gardens, London, S.W.7. 1950.

Contents: 1. Lighting. 2. Meals. 3. Privacy. 4. Visitors' Chairs. 5. Summoning Aid. 6. Noise. 7. Pictures, Clocks, Wall-Colouring. 8. Clothing and Luggage Cupboards. 9. Bed-Tables and Trays. 10. Bedside Lockers. 11. Window-Boxes, Bird-Tables, Mirrors. 12. Library and Shopping Service. 13. Occupations. 14. Correspondence and Birthdays. 15. Visitors. 16. Outpatients and Enquiries. 17. The Early Morning Wash.

In this little book Miss Matthews has sought to suggest a number of improvements that might be introduced to hospitals and other institutions in order to make the hours of illness and convalescence pass more pleasantly.

Miss Matthews has spent a great deal of her time in the service of the sick and aged and understands their needs thoroughly. She is well known in England for the work that she has done for old people, and a glance at the chapter titles above will show how widely she treated this subject under review dealing with so many of the little things that have been overlooked and yet, which can mean so much to relieve the tedium of illness.

This little book could well be studied by persons who have to do with the care of the sick whether it be in hospitals, nursing homes or private residences.

CORRESPONDENCE

PROBLEMS OF GROWTH

To the Editor: I am sure that everyone present was stimulated by Professor Moncrieff's talk on 25 July entitled *Problems of Growth*, and I must plead his provocation of thought as my excuse for these observations:

1. *The effect of environment on growth*: I understand that before the first World War, Japanese children all wore kimonos and a type of sandal which is held on to the foot by a thong between the first and second toes. Consequently they used a shuffling gait and were restricted in their activities. Because of the war and the more extensive contact with the Western world, the Japanese leaders passed a law which made it compulsory for all children between the ages of six and 16 to wear a type of Western sailor suit and 'takkies'. Within a generation the average height of the young adults in Japan had increased by one-and-a-half inches. Presumably the main factor is increase in activity.

During the last war it was also quite noticeable that the average height of the troops from Australia, New Zealand and South Africa was greater than the average height of British, Dutch or French units. And yet, most of the Dominion troops spring from these European stocks. Is it the increased freedom of movement and the 'wide, open spaces?'

2. *Growth and knock-knees*. Professor Moncrieff suggested that knock-knee is a normal phenomenon of growth and that in most cases the child 'grows out of it' without treatment. When I worked in England I was prepared to support this impression, but one forgot that each great hospital there, served a population in which basically all children were similarly nurtured and trained. In South Africa, however, we have a diversity of races and each tends to rear its offspring in a different way. Here, knock-knee (excluding cases of rickets which are rare) is most common in the children of well-to-do Europeans—and secondly, in those of the poorer European. One hardly sees it among Coloured or Native children and when one does, it is in the children of those non-Europeans who rear their children in European fashion, the common factor being the cot. I think it is the absence of this refinement of civilization which is the reason why the non-European child so rarely suffers from postural knock-knee.

When children stand up in their cots they stand with their feet well apart on the soft surface, and they strain the medial ligaments of the knees. On examination, in most cases the medial ligament is lax. When the child gets past the cot stage and plays on the floor or in the open, the ligaments tighten up and their knock-knees straighten. However, as the ligaments are lax, if the deformity exceeds a certain angle, they walk on the inner borders of the feet, continue the strain on the inner side of the knee and so maintain or aggravate the deformity. These children do require treatment, and it can be done quite simply by any method which tilts the inner side of the foot and so throws the strain on the outer side of the knee.

A child can carry his knock-knees and flat feet quite comfortably through adolescence. It is the adult who pays for the deformities of childhood. The Orthopaedic Departments of the general hospitals—and not of the children's hospitals—deal with the resulting disabilities. In the army it was quite evident that normally-shaped feet stood up to strain better than did the flat or any other aberration of shape.

I think it should be the object of all those who deal with children to ensure that they grow up with straight legs and straight feet.

Arthur J. Helfet.

'Acorns,'
Fernwood Avenue,
Newlands, Cape.
8 August 1951.

A SIMPLE METHOD OF DRESSING RETENTION

To the Editor: The retention of a dressing over an open or sutured wound presents a problem the management of which has hitherto not been standardized.

The use of adhesive plaster bandage has been abandoned largely because of so-called skin sensitivity. This, however, is often due to excessive pre-operative skin preparation, or to lack of certain sensible precautions. Few patients will manifest skin sensitivity to adhesive plaster when these errors are corrected.

That the effort is worth while is apparent on consideration of the alternative method, retention by non-adhesive bandage. This method is unsatisfactory, and even harmful, for the following reasons:—

1. A non-adhesive bandage tends to slip if applied at all loosely.

2. It tends to interfere with the venous return, in the case of a limb; or to encroach on the thoracic cage and interfere with free breathing, in the case of the abdomen.

A simple method of overcoming the disadvantages of adhesive plaster is here described in the hope that it may be of some value to fellow practitioners.

Let us take as an example an abdominal operation wound. A dressing is applied to cover the wound and the sutures—the writer prefers a 'dolly', i.e. gauze wrapped around a pad of cotton wool about the length and breadth of the area to be covered. Over this, one or more strips of elastic adhesive plaster are applied as follows: each strip is cut long enough, when stretched, to secure a firm grip half-way around the body on either side. After wiping the skin with ether, each strip is applied, on the stretch, to both sides of the wound simultaneously, so avoiding distortion of one or other side. The ends are carefully pressed down. This completes the initial dressing.

During the next few days, it may be necessary to inspect the wound, remove a drain, or change a soiled dressing. *This is done without loosening the grip of the plaster on the skin*, as follows:—

Cut the plaster alongside one edge of the dressing, inserting closed scissors before each cut is made to avoid nipping the skin. Then turn the flap of plaster and dressing back to expose the wound. Remove the loosened part of the plaster and the dressing by cutting alongside the other edge of the dressing. Attend to the wound, and apply a clean dressing. Secure this with fresh strips of plaster, applied exactly as in the first instance, so that they grip the remaining parts of the old strips as their foundation.

The dressing can thus be changed as many times as necessary. Each time, the foundation becomes thicker, but the original grip on the skin is undisturbed, and little or no irritation is produced in these circumstances.

During the period that the plaster is left *in situ*, the nurse or patient should watch the ends, which tend to curl. If so, they should promptly be trimmed to prevent further curling. Warming the strips—on an electric light bulb, or on the lid of the sterilizer—before their application, ensures firmer adhesion and less trouble from this source.

If the patient complains of pain in the wound at any time, as if the stitches are caught in the dressing, it is a simple matter to ease the dressing off the sutures with a blunt instrument without disturbing the plaster.

When the sutures are removed, it is advisable to renew the plaster strips for another week. This continues to counter the tendency for a beautiful linear cicatrix to be transformed, by abdominal movements, into an ugly half-inch scar.

Finally, the adhesive is removed by cutting alongside the dressing and gently removing both halves with the aid of ether or benzene. The skin is then cleaned and powdered.

801 Medical Centre,
Jeppe Street,
Johannesburg.
16 August 1951.

M. Arnold, F.R.C.S.E.

APPEAL FOR SECOND-HAND OPHTHALMIC INSTRUMENTS

To the Editor: The Order of St. John in Southern Africa has pleasure in announcing that the first unit of the St. John Ophthalmic Hospital, built at Baragwanath just outside Johannesburg, has been completed and is expected to open its doors in September 1951. Staff and equipment are at present receiving attention.

All the work has been carried out in close co-operation with local ophthalmologists.

Should any member of your Association have any redundant ophthalmic instruments and equipment, these will be very welcome to the hospital.

Dr. C. G. Booker,
Medical Superintendent.

P.O. Box 7137,
Johannesburg.
23 August 1951.

SURGERY IN THE AGED

To the Editor: In your issue of 4 August 1951, the article 'Surgery in the Aged', though timely, has yet to my mind certain shortcomings:—

1. 'If constipation is persistent, a daily enema for two or three days before the operation will be all that is necessary....' Surely this constitutes 'flogging the bowel', a potent factor in the causation of post-operative ileus? 'To maintain the *status quo ante*', it is advisable to rely on measures which the patient has previously found effective; but if these are drastic, constipation will be the lesser evil.

2. Pre-operative active exercises were not mentioned. The aged are slow to learn such details in the uncomfortable post-operative period. If exercises are well ingrained beforehand, it will be much easier to encourage their performance after the operation.

3. Deep thrombosis is so much to be feared, that other measures are advisable as well. During the operation particularly, a soft pillow under the calves may do much to minimize the chances of damage to the intima of the deep sural veins.

4. 'The modern anaesthetist has eliminated many risks from surgery, and the choice of the anaesthetic can safely be left to him....' One can agree with this statement on one condition—that local anaesthesia is always chosen. (By 'local', one does not mean or include spinal anaesthesia.) If 'rough handling of the tissues should be avoided, and long incisions are rewarding', and if 'it appears that up to about two hours is the critical time', surely the claims of local anaesthesia can in no instance be overlooked? Under local anaesthesia, gentleness is inevitable, and the time factor relatively unimportant. Even the danger of deep thrombosis is less, as the calf muscles retain their tone and are less compressible. The anaesthetist can and should encourage active leg exercises—leg movements and deep breathing—at regular intervals during the operation.

5. 'In the early post-operative stages, if urine is not voided, a catheter should be passed and left *in situ* for about six hours....' But for the first 12-24 hours oliguria is usual, and need not cause alarm. If the bladder is distended and uncomfortable, one may try other measures to evoke micturition. Standing, and the noise of a running tap, should first be tried. The next resort is an injection, repeated twice if necessary at hourly intervals, of a parasympathetic agent to offset the sympatheticotonia produced by the operation. The catheter is the last resort. Quite apart from the possibility of introducing infection, one cannot agree that 'after this, micturition is usually resumed without difficulty if there is no prostatic disease'.

6. 'Enemas are useful after a day or two, as the patient feels better for these evacuations....' But even when peristalsis has definitely returned, as evidenced by typical borborygmi, ileus is still a real and serious post-operative hazard. In any event, a rectal examination is surely an essential preliminary before ordering an enema. If the rectum is empty, the value of an enema is at least open to doubt.

7. 'The margin of error is so small that even apparently minor precautions are valuable....' Under local anaesthesia, the margin is by no means small.

8. 'Surgery in the aged should be attempted only in cases where the operation is considered essential. All surgery in this age group is dangerous, and should not lightly be undertaken....' There are numerous exceptions. Under local anaesthesia, many operations, in particular for the repair of herniae, may safely be undertaken. Such an operation is not life-saving, but the comfort and happiness it brings is beyond assessment.

Maurice Arnold, F.R.C.S.E.

801 Medical Centre,
Jeppe Street,
Johannesburg.
24 August 1951.

SOME DISCREPANCIES IN DISEASE INCIDENCE BETWEEN THE EUROPEAN AND THE SOUTH AFRICAN NEGRO (BANTU)

To the Editor: Will you please grant me the opportunity of refuting Drs. Charlewood and Frylinck's attack upon one of my publications in their article, 'Some Discrepancies in Disease Incidence between the European and the South African Negro (Bantu)', which appeared in your *Journal* on 11 August 1951? I refer to the statements in their summary and conclusions (page 573). These statements seem to discredit the validity of the statistics for cancer, observed during the eight-year period 1926 to 1933 among the Bantu in-patients of the Johannesburg non-European Hospital, which I had the privilege of reviewing. (Berman, C.—Malignant Disease in the Bantu of Johannesburg and the Witwatersrand Gold Mines (1935): S. Afr. J. Med. Sci., **1**, 12.)

They state: 'The only previous comparison to which reference could be made was Strachan's (1934) based on the 3,851 post-mortem examinations he had performed. Berman's work on malignant disease (1935) was handicapped by the fact that he used the non-European section of the General Hospital which could not at that time be considered comparable with the European section. There was gross overcrowding in the non-European wards, and therefore careful screening and selection of cases was unavoidable. Berman did not make a direct comparison of European with African incidence'.

In the first place, I would like to direct the attention of Drs. Charlewood and Frylinck to the important paper by the late Dr. C. F. Beyers entitled 'Incidence of Surgical Diseases among the Bantu Races of South Africa' (1927): J. Med. Assoc. S. Afr., **1**, 606. This pioneer contribution is, in my opinion, indispensable to anyone attempting a comparison of disease incidence in the Bantu and European populations of Johannesburg. It is a statistical review of the principal surgical conditions (including tumours) met with among 18,000 in-patients at the non-European section of the Johannesburg Hospital during the period 1921 to 1926.

My own paper is in part a continuation of Dr. Beyers' inquiry into the incidence of malignant disease at the same hospital and, as already stated, covers the subsequent years 1926 to 1933.

Let me assure Drs. Charlewood and Frylinck that the Johannesburg non-European Hospital during the period under review was no handicap either to me (as a medical student and later as a houseman) or to any of my contemporaries. On the contrary, it was here that a considerable portion of the undergraduate teaching was conducted—under ideal conditions. For the Johannesburg non-European Hospital was only completed in 1925, and although officially opened by the late Mr. J. H. Hofmeyr (then Administrator of the Transvaal) on 13 June 1925, it was not used for the accommodation of patients until October of that year, i.e., a few months prior to the period considered by me. It embodied the most modern hospital amenities of the time and compared favourably with some of the teaching hospitals in Great Britain, Europe, and America visited by me during 1937.

As to the statement that it was overcrowded and therefore could not be considered comparable with the European section, the following statistics obtained from the Annual Reports of the Johannesburg Hospital for the years 1926 to 1933 tell a different story:—

Year	*Johannesburg Non-European Hospital*			*Johannesburg General (European) Hospital*		
	Bed establishment	*Daily average No. of patients*	*Per cent occupied beds*	*Bed establishment*	*Daily average No. of patients*	*Per cent occupied beds*
1926–7	204	190	93·1	484	470·1	97·1
1927–8	206	197	95·6	496	496·7	98·1
1928*	206	204·5	99·3	496	457	92·1
1929	206	211·1	102·4	496	452·5	91·2
1930	293	234	79·9	526	474·8	90·2
1931	293	243·1	82·9	511	467·9	91·6
1932	293	254·5	86·8	511	472·2	92·4
1933	300	264	88·0	511	474·3	92·8

* 9 months

The above official statistics make it quite obvious that, with the exception of 1928 (portion) and 1929, the position concern-

ing patient beds at the non-European Hospital was not only satisfactory, but, contrary to what has been said, was even more favourable here than at the General (European) Hospital!

Consequently, I am at a loss to understand what is meant by the remark: 'and therefore careful screening and selection of cases was unavoidable'. I would like to emphasize that the final diagnosis in each case report reviewed by me had been made by a member of the Honorary Staff, which included at that time such well-known clinicians as Drs. Braun, Heimann, Block, Mary Gordon, Peacock, de Waal, Balkin, Joseph J. Levin, Beyers, Dauth, Greenberg, Douglas, Fouché, Pocock, Gibson, Te Water, Schabort, Black, Andrew, Friedman, Robinson and Gluckman. With regard to the methods of diagnosis, I would refer my critics to Table V, page 19 in my paper.

That I did not make a direct comparison of African with European incidence, does not detract from the value of my statistics, since, at that time, I thought with Drs. Charlewood and Frylinck that 'the incidence of most disease processes in the European was sufficiently well established'.

Charles Berman, M.D.

Consolidated Main Reef Mine Hospital,
P.O. Box 2,
Maraisburg.
25 August 1951.

CHOICE OF FREE MEDICAL ATTENDANT

To the Editor: As shown in paragraph 46 of the minutes of the meeting of the Federal Council reported under the Workmen's Compensation Act sub-committee in the *Journal* of 25 August 1951, it was proposed and resolved *nem. con.*, 'that the Federal Council is aware that practitioners have entered into private arrangements with employers and disapproves of this procedure and that the correct and proper course for the medical practitioner to follow, when an injured workman is sent to him by an employer, is to inform the workman that he has free choice of doctor and to ask him whether he elects to be treated by the practitioner concerned'.

It would, therefore, appear that the average workman is not aware of his right under the Workmen's Compensation Act as to his free choice of medical attendant in the event of an accident. I suggest that the obvious answer to this would be for the Workmen's Compensation Commissioner to print and issue cards in bold type in Afrikaans, English, and Native languages, pointing out that the workman has the right to a free choice of doctor and that it should be made compulsory for these cards to be prominently displayed in the rest-rooms of the factories, shops, etc., and be made an offence for such cards not to be so displayed.

I. Gurland.

303 Dumbarton House,
Church Street,
Cape Town.
28 August 1951.

CONGENITAL MEGACOLON AND HIRSCHSPRUNG'S DISEASE

To the Editor: It was with surprise that I read Nuffield Scholar J. H. Louw's 'constructive criticism' of Mr. H. Katz's article on the above subject (this *Journal*, 25 August 1951).

I will not venture into another learned and hair-splitting argument about megacolon and Hirschsprung's disease. Suffice it to say that there was a very sick boy acutely obstructed, with a history of a previous operation by one of South Africa's best-known teachers of surgery. Mr. Katz acted and saved a life. Theorizing with enemas *et al.*, would surely have killed and not saved, although by saving this life the profession was done out of a very interesting post-mortem, slides, etc.

When my good friend Mr. J. H. Louw approaches the half century and has spent the greater part of this in trying to keep morsels of humanity on this side of the great unknown beyond, he will learn that bellies are divided into acute and chronic and that the former must be opened and the sooner the better, lest we want to descend again to the results obtained by our forebears 'the barber surgeons'.

William Steenkamp, Jr.

S.A. Mutual Building,
Darling Street,
Cape Town.
4 September 1951.

To the Editor: Mr. J. H. Louw implies that the case in the article, '*Congenital Megacolon Treated by Colectomy*', was not one of Hirschsprung's disease, but that of idiopathic megacolon (this *Journal*, 25 August 1950). I would again stress my reasons for labelling this a true Hirschsprung. The above case was shown at a clinical evening at Groote Schuur Hospital two years ago, when Bodian's views on Hirschsprung's disease and the question of recto-sigmoidectomy were discussed. I do not recall any criticism by Mr. Louw, constructive or otherwise.

The patient's history dates from birth and he had since been under observation and treatment by paediatricians in the Transvaal. All the conservative measures having failed, a lumbar sympathectomy was performed by Mr. Besselaar in 1944, without response. The type of case which responds to sympathectomy is usually the idiopathic type of megacolon without gross structural changes. The obstinate constipation lasting three weeks at a time can be regarded as more severe than a moderate 'colonic inertia', as so ably diagnosed by Mr. Louw. The involvement of a segment of large bowel, the marked hypertrophy, the dilatation of bowel with ulceration of the mucosa and the involvement of the glands, strengthens the diagnosis. Lastly, for Mr. Louw's information, no further post-operative aperients, enemas, etc., have been necessary. After a period of nearly three years the boy has grown rapidly, remaining in excellent physical health, after having been poor and underveloped.

Bodian, Stephens *et al.*, have done some excellent work on the subject of Hirschsprung's disease and claim that the pathology is at the recto-sigmoid in the form of a constricting ring, caused by the absence of ganglionic nerve cells. Is it not feasible that this narrow segment of bowel was removed during the performance of the colectomy?

As stated in my paper, Dixon and Judd from the Mayo Clinic have treated 43 cases by colectomy with excellent results. Only time will tell whether colectomy or recto-sigmoidectomy is the operation of choice.

H. Katz, Ch.M.

408 Dumbarton House,
Church Street,
Cape Town.
6 September 1951.

THE DOCTOR AND HIS INCOME TAX

To the Editor: Your editorial remark about the *Guide to Income Tax*, appearing in your issue of 1 September, to the effect that the guide would make it possible for every doctor to complete his Income-Tax Return without the services of accountants or income-tax consultants, give me ground to think that by reading other articles which appear in your paper at various times on the treatment and cure of various diseases it will be possible for me to do without the services of a medical practitioner, for by reading them I am sure I will be able to cure any disease which I might unfortunately contract.

Do you not think that experience and knowledge of accountancy is required in connexion with a doctor's books and income-tax returns in the same way as treatment by medical practitioners is a question of training and experience?

Accountant.

Cape Town.
7 September 1951.

MEDICAL AGENCY ESTABLISHED IN DURBAN

Members of the Association resident in Natal, Zululand and East Griqualand, will be interested and pleased to know that a Medical Agency has been established by the Natal Coastal Branch at its office, 112 Medical Centre, Field Street, Durban.

The Agency which is a branch of, and acts in close collaboration with, the Agencies in Cape Town and Johannesburg, is under the capable direction of Mrs. A. Brinkworth, who has had considerable experience in this branch of the Association's activities.

The Agency is prepared to handle the sale and purchase of practices, and is equipped to arrange Assistantships, provide Locum Tenens, etc., at a very moderate fee.

This work will be done in Durban and thus a considerable amount of time will be saved in bringing these transactions to a successful conclusion. The establishment of this very important office in Durban will undoubtedly prove of great benefit to all concerned and members are urged to make the greatest possible use of the facilities provided.

Any further information may be obtained from the

Agency Manager, 112 Medical Centre, Field Street, Durban

The Medical Association of South Africa
Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP AFDELING

JOHANNESBURG

Medical House, 5 Esselen Street. Telephones 44-9134-5, 44-0817
Mediese Huis, Esselenstraat 5. Telefone 44-9134-5, 44-0817

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(Pr/S30) Johannesburg Partnership practice plus Solus practice. Mainly non-European. Present income £3,600 p.a. Premium for quick sale £1,250.

(Pr/S31) O.V.S.-praktyk. Goeie geleentheid vir algemene geneesheer met aanleg vir snywerk. Alle fasiliteite. Medisyne word aangemaak. Moet tweetalig wees. Jaarliks inkomste £2,400. Eienaar gaan verder studeer. Premie vir klandiesiewaarde, instrumente en voorrade, £1,500. Een maand introduksie sal gegee word.

MEDICAL EQUIPMENT

(I 017) Leitz microscope £45.

(I 018) What offers? Complete set *British Encyclopaedia of Medical Practice* plus all editions of *Medical Progress* to 1950. Condition as new.

(I 019) Zeiss microscope. Condition as new. £55.

(I 020) "Standby" model Baumanometer. £10.

(I 021) Portable Baumanometer. £3.

(I 022) Klinostik Auroscope with Ophthalmoscopic attachment. £3.

(I 023) Heavy based Irrigator stand, height adjustable, complete with glass flask and hook to carry vacolitre flasks. £7.

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KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177 : P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(821) Eastern Province hospital town. Gross cash receipts £2,200. Premium required £850 which includes drugs, furniture and instruments valued at £350. Mainly non-European at present but with definite scope for future.

(673) Natal. Average gross receipt £1,650 p.a. Prescribing. Premium required £1,275. One appointment £200 p.a. Good scope for expansion. Double-storied seven-roomed house situated on 1½ acres and separate surgery building for sale at £6,500. Surgery may possibly be rented by arrangement at approx. £8 p.m. Picturesque surroundings. Climate notably cooler than that of the coast.

(746) Large dispensing practice, mainly non-European. Average annual cash receipts approx. £5,200. £5,500 required for premium, drugs and surgery furniture. Details on application.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(788) Cape Town and Suburbs. From 12 December for six to seven weeks.

(776) Noord-Kaaplandse hospitaaldorp. Vir vier tot ses weke vanaf Desember of Januarie. £2 2s. per dag plus losies plus 9d. per myl kartoelae. Asook reiskoste gelykstaande aan eersteklas-retoerkaartjie.

(813) Kaapstad. Vir voorstedelike praktyk so spoedig moontlik na 8 Desember vir vier to ses weke. £2 2s. p.d. plus vry inwoning. Kar word verskaf.

(814) Cape Town suburb. From 27 December for 16 days. £2 2s. p.d. plus board and lodging. Preferably married gentile.

(815) Karoo. So spoedig moontlik vir een maand. Getroud of ongetroud. Gewone salaris. Liefs Afrikaanssprekend.

(816) Cape Town suburb. From 1 to 31 December for partnership practice. Car could be supplied. Salary to be arranged.

VENNOOTSKAP VERLANG : PARTNERSHIP REQUIRED

(811) Partnership share in Cape or Natal in predominantly English-speaking practice with min. net. income £2,500 p.a.

Rhodesia Railways

MEDICAL DEPARTMENT

Applications are invited from registered medical practitioners for a whole-time Extern Railway Medical Officer. Private practice will not be allowed.

Salary £1,370 to £2,120 (pensionable) by increments and subject to efficiency barriers: Cost-of-living and children's allowances and leave conditions apply in accordance with Railway Regulations.

There is a three years' probationary period. Successful applicant will be required to assume duty on or about 1 December 1951.

Previous experience in hospitals, general practice and anaesthetics is essential.

Duties are chiefly those of conducting a clinic for Africans in the Railway African Township, Bulawayo, and other duties of a general practitioner as allocated by the Chief Medical Officer. Duties do not include the attendance on hospitalized patients.

Further information and particulars will be supplied to suitable applicants.

Applications stating age, qualifications, previous experience, birth-place, nationality, civil status and copies of recent testimonials should be forwarded not later than 15 October 1951, to the Chief Medical Officer, Rhodesia Railways, P.O. Box 792, Bulawayo. (M.D. 160)

E.N.T. Outfit

Retiring E.N.T. Surgeon offers at bargain price complete set of E.N.T. instruments and apparatus, including electric ear masseur, electric pharyngoscope, Haslinger bronchoscope and oesophagoscope (Vienna), audiometer (Pillings, Philadelphia), bougies, dilators, etc. Five-shelved white enamelled instrument cabinet, etc. Original cost over £600. Bargain at £300. Apply 'E.N.T.', P.O. Box 209, Maritzburg, Natal.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

Applications are invited from registered medical practitioners for appointment on contract in a whole-time capacity in the undermentioned departments to various posts of medical practitioner Grades 'A', 'B' and 'C' in the joint medical staff at the Groote Schuur and other teaching hospitals in the Peninsula.

Division of Surgery:

Medical practitioner grade 'B': Initially for duty in casualty department.

Medical practitioner grade 'A': Department of general surgery.

Division of Obstetrics and Gynaecology:

Medical practitioner grade 'A': To be resident at Somerset Hospital.

Medical practitioner grade 'A': To be resident at Peninsula Maternity Hospital.

Ancillary Division:

Medical practitioner grade 'C': Department of Anaesthetics.
Medical practitioner grade 'B': Department of Anaesthetics.
Medical practitioner grade 'A': Department of Anaesthetics.
Medical practitioner grade 'B': Department of Radiodiagnosis (three posts).
Medical practitioner grade 'A': Department of Radiodiagnosis (two posts).
Medical practitioner grade 'A': Department of Radiotherapy.

The salaries applicable to posts of medical practitioner grades 'A', 'B' and 'C' are as follows:

Medical practitioner grade 'C': £1,000 - 50 - £1,200 per annum.
Medical practitioner grade 'B': £720 - 40 - £960 per annum.
Medical practitioner grade 'A': £500 - 600 - 660 - £720 per annum.

In addition to the scale of pay indicated, a cost-of-living allowance at rates prescribed from time to time by the Administrator is payable.

The following are the minimum requirements for appointment to the different grades of posts of medical practitioner in specialist departments.

Grade 'C':

Not less than five years' experience after graduation or four years' experience after registration, of which not less than three years shall have been spent in training as a specialist in the speciality in which the vacancy exists.

Grade 'B':

Not less than three years' experience after graduation or two years' experience after registration.

Grade 'A':

Up to and including three years' experience after graduation or two years' experience after registration.

The following conditions of service will apply to appointments to the Joint Medical Staff:

(a) All appointments will be in terms of and subject to the provisions of Ordinance No. 19 of 1941, as amended, and the regulations framed thereunder.

(b) The Joint Medical Staff will be required to serve jointly the Provincial Administration of the Cape of Good Hope and the University of Cape Town.

(c) Attendances at staff conferences and medical committee meetings will constitute part of the duties.

(d) Contracts will be up to a maximum period of four years in a grade, the appointment to be subject to confirmation at the end of the first twelve months and further subject to termination at any time on ninety days' notice on either side.

(e) Medical practitioners, grades 'A', 'B' and 'C', will be available for circulation amongst the different departments at the institution at the discretion of the Medical Superintendent.

(f) Medical practitioners grade 'C' must be practitioners definitely specializing in a particular speciality and will be confined to that speciality.

Applications must be made on the prescribed form (Staff 23) which is obtainable from the Director of Hospital Services, P.O. Box 2060, Provincial Building, Wale Street, Cape Town, or from the Branch Representative of the Hospitals Department at Cape Town (P.O. Box 1487), Port Elizabeth (P.O. Box 80), East London (P.O. Box 13), Kimberley (P.O. Box 618), and Umtata (P.O. Box 202), or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

The completed application forms must be addressed to the Branch Representative, Hospitals Department (P.O. Box 1487), Cape Town, and must reach him not later than 22 October 1951. Candidates must state the earliest date on which they can assume duty.

(12154)

Transvaal Provincial Administration

TEMPORARY VACANCY: BOKSBURG-BENONI HOSPITAL, BOKSBURG

Applications are invited from suitably qualified anaesthetists who will be available to attend the Boksburg-Benoni Hospital at one or more of the periods set out below during the period 27 December 1951 to 8 February 1952.

The periods during which anaesthetic services will be required are as follows:

Monday afternoon: From 2 p.m. onwards—general surgery.
Tuesday morning: From 10.30 to 12.30—gynaecology.
Tuesday afternoon: From 2 p.m.—urology.
Thursday afternoon: From 2 p.m.—gynaecology.
Friday morning: 8 a.m. for one to two hours—otorhinolaryngology.
Friday afternoon: From 2 p.m.—orthopaedics.

Sessions starting at 2 p.m. continue depending on the amount of work to 5 or 6 o'clock or later.

Candidates are requested to specify whether they would be available at all of the times set out and, if not, during which periods they would be able to attend.

The successful candidates will be paid at the rate of £205 per annum in respect of each session of four hours attended each week and will in addition be paid a travelling allowance at official rates for travelling done in their privately-owned motor-cars from their consulting rooms to the hospital and back if their consulting rooms are situated outside the municipal areas of Boksburg and Benoni.

Applications should be addressed to the Medical Superintendent, Boksburg-Benoni Hospital and should contain full particulars as to the age, professional, academic and language qualifications.

Closing date of applications 15 October 1951.

(31246)

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

Applications are invited from registered medical practitioners for the following post:

Woodstock Hospital: *Honorary assistant gynaecologist.*

The appointment will be for five years, but may be terminable before the end of that period if and when the medical staffing at the hospital is reorganized.

Applications containing particulars of age, qualifications, experience, etc., with copies of recent testimonials, should be forwarded to reach the undersigned by noon on 22 October 1951.

L. Welham
Branch Representative
(12240)

Hospitals Department
Industry Building
58 Loop Street
Cape Town.

Health Department

NORTHERN RHODESIA GOVERNMENT

There is an immediate vacancy for a Tuberculosis Medical Officer in the above Service, and applications are invited from doctors who are British Subjects and possess qualifications registrable in the United Kingdom. Previous experience in Tuberculosis or Chest work is desirable but not essential.

The selected candidate will, in the first instance, be engaged on agreement for three years with the possibility of permanent appointment. The agreement is terminable by Government at any time by three months' notice or payment of one month's salary, and by the officer on the same terms at any time after three months' service.

The terms of service are as follows:—

Salary: £865; £865; £935 × 35—£1,005 × 45—£1,140 × 45—£1,320 × 45—£1,590. Promotion bar at £1,140.

The point of entry into the scale depends on qualifications, previous experience, and in certain cases credit for war service over the age of 26 years.

Cost-of-Living Allowances: 16⅔ of salary is at present paid up to a maximum of £211 4s.

Transport on appointment: Free first-class rail fares are provided for officer, wife and dependent children under the age of 21 from place of engagement to Northern Rhodesia. The whole, or such part as may be directed, of this expenditure is refundable in the event of the officer's failing of his own accord to complete a minimum tour of residential service of 24 months.

Quarters: Government quarters are provided and are furnished with heavy furniture, but linen, carpets, curtains, crockery, cutlery, etc., are not provided. A deduction of up to 10% from salary is made for rent when Government quarters are occupied.

Leave: Subject to the exigencies of the public service, local leave at the rate of 14 working days each year. Vacation leave on completion of a tour of service, five days for each month of residential service. An officer who is returning for further service is granted, when proceeding on vacation leave, free first-class rail fares for himself, wife and dependent children under the age of 21, to any place not further distant from Northern Rhodesia than Cape Town. In addition, if proceeding overseas, free passages for himself, wife, and up to one full fare in respect of dependent children to the United Kingdom by the normal route.

If an officer is not returning for further service, he will receive rail transport as above to the place from which he was appointed.

Medical attention: Free for officer and his family in Northern Rhodesia. Hospital fees payable at reduced rates.

Rates and Taxes: Income Tax, water, light and sanitary fees.

Widows' and Orphans' Pension Scheme: Contributions to the Widows' and Orphans' Pension Scheme are compulsory and vary from £48 per annum to £80 per annum, according to salary.

Applications should be addressed to the Director of Medical Services, P.O. Box 205, Lusaka, from whom further details can be obtained. (5047/S/A/81)

Medical Practitioner

Applications are invited from medical practitioners for the position of full time locum tenens at Kynoch Hospital for the period 24 December 1951 to 13 January 1952. Remuneration £3 3s. per day with free board and lodging at our local Staff Quarters. Please reply to Factory Manager, African Explosives & Chemical Industries, Limited, Umbogintwini.

(U/469/51)

Medical Practice for Sale

Orange Free State. Oldest practice in Free State's most pleasant town (Eastern). Hospital. Good native income. Reason for selling, retirement. £500. Reply to 'A. I. K.', P.O. Box 643, Cape Town.

Central News Agency Limited Staff Medical Benefit Society

PANEL DOCTOR REQUIRED

Applications are invited from registered medical practitioners to act as panel doctor to the above Society in the Woodstock, Salt River, Observatory and Mowbray areas.

For further particulars apply to: Mr. R. Burningham, Secretary, Central News Agency Ltd., Staff Medical Benefit Society, P.O. Box 9, Cape Town.

Part-Time Medical Officer

RUSTENBURG PLATINUM MINES MEDICAL BENEFIT SOCIETY

Applications are invited for fully qualified registered general practitioners in respect of the above appointment.

Applications must reach the Secretary of the Society, P.O. Box 143, Rustenburg, by Friday, 26 October 1951.

Further particulars can be obtained from the Secretary.

Jan Christiaan Smuts: His Character and Life

An illustrated story in verse by Dr. Arnold Rieck. The *Cape Times*, the *South African Medical Journal* and other publications commend this book both with regard to the lovely illustrations and the fluent edifying nature of the verse. Why not order your copy before the edition runs out? Obtainable for £1 post free from Dirk du Plooy, P.O. Box 38, Hopetown, Cape. Juta & Co. also stock this book.

Bute Heuningvlei Asbestos Ltd.

Applications are invited from medical practitioners for appointment as part-time Medical Officer to the above Company to commence duties as soon as possible. Full information regarding the appointment may be obtained from the Manager, P.B. Heuningvlei, Via Vryburg, Cape Province. Applications must be submitted before 30 October 1951. Copies of two recent testimonials required.

Required

Medical officer required for Gath's Mine (Asbestos), Mashaba, Southern Rhodesia, immediately. Salary £1,200 per annum, with free house and transport provided. Further particulars on application to Principal Medical Officer, Shabanie Mine, Shabani, Southern Rhodesia.

Required

An Assistant with view to partnership for inland town; large general practice. Experienced anaesthetist a recommendation. Own car. Salary based on experience. For further particulars write to 'A. I. J.', P.O. Box 643, Cape Town.

For Sale

One Klinostik Diagnostic set and one doctor's bag. For further information write to the Local Agency Manager, Medical Association of South Africa, 112 Medical Centre, Field Street, Durban.

Medical Officer Wanted

Medical Officer wanted for small lodge in Cape Town. Write to 'STA', c/o P.O. Box 643, Cape Town. Closing date for applications 13 October 1951.

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